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=> d his ful

     (FILE 'HOME' ENTERED AT 10:02:39 ON 16 SEP 2009)

     FILE 'LREGISTRY' ENTERED AT 10:03:01 ON 16 SEP 2009
L1             STR
L2           50 SEA SSS SAM L1

     FILE 'REGISTRY' ENTERED AT 10:03:58 ON 16 SEP 2009
L3           50 SEA SSS SAM L1
L4       670036 SEA SSS FUL L1

     FILE 'LREGISTRY' ENTERED AT 10:04:27 ON 16 SEP 2009
L5             STR

     FILE 'REGISTRY' ENTERED AT 10:05:42 ON 16 SEP 2009
L6           33 SEA SUB=L4 SSS SAM L5
L7         2873 SEA SUB=L4 SSS FUL L5
                ACT ECH222/A
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L8            7 SEA SPE=ON  ABB=ON  PLU=ON  (154619-15-5/BI OR 161000-64-
                2/BI OR 273735-07-2/BI OR 770733-64-7/BI OR 792931-71-6/B
                I OR 792931-72-7/BI OR 792931-73-8/BI)
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L9            4 SEA SPE=ON  ABB=ON  PLU=ON  L7 AND L8

     FILE 'HCAPLUS' ENTERED AT 10:07:28 ON 16 SEP 2009
L10         2532 SEA SPE=ON  ABB=ON  PLU=ON  L7

     FILE 'LREGISTRY' ENTERED AT 10:07:40 ON 16 SEP 2009
L11            STR

     FILE 'REGISTRY' ENTERED AT 10:09:42 ON 16 SEP 2009
L12          10 SEA SUB=L4 SSS SAM L11
L13         127 SEA SUB=L4 SSS FUL L11

     FILE 'HCAPLUS' ENTERED AT 10:10:13 ON 16 SEP 2009
L14         146 SEA SPE=ON  ABB=ON  PLU=ON  L13
L15          21 SEA SPE=ON  ABB=ON  PLU=ON  L14 AND L10

L16           0 SEA SPE=ON  ABB=ON  PLU=ON  L15 AND PY<=2003 NOT P/DT
L17           6 SEA SPE=ON  ABB=ON  PLU=ON  L15 AND (PD<=20030425 OR
                PRD<=20030425 OR AD<=20030425) AND P/DT
                D L17 5 HITSTR
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     FILE 'REGISTRY' ENTERED AT 10:19:12 ON 16 SEP 2009
L18           3 SEA SPE=ON  ABB=ON  PLU=ON  L13 AND L8

     FILE 'LREGISTRY' ENTERED AT 10:19:53 ON 16 SEP 2009
L19             STR L11

     FILE 'REGISTRY' ENTERED AT 10:29:09 ON 16 SEP 2009
L20          27 SEA SUB=L4 SSS SAM L19

     FILE 'LREGISTRY' ENTERED AT 10:30:23 ON 16 SEP 2009

L21             STR L19

     FILE 'REGISTRY' ENTERED AT 10:40:16 ON 16 SEP 2009
L22           0 SEA SUB=L4 SSS SAM L21

     FILE 'LREGISTRY' ENTERED AT 10:40:41 ON 16 SEP 2009
L23             STR L21

     FILE 'REGISTRY' ENTERED AT 10:41:12 ON 16 SEP 2009
L24          30 SEA SUB=L4 SSS SAM L23

L25         669 SEA SUB=L4 SSS FUL L23

     FILE 'HCAPLUS' ENTERED AT 10:43:12 ON 16 SEP 2009
L26         589 SEA SPE=ON  ABB=ON  PLU=ON  L25
L27          27 SEA SPE=ON  ABB=ON  PLU=ON  L26 AND L10
L28           4 SEA SPE=ON  ABB=ON  PLU=ON  L27 AND PY<=2003 NOT P/DT
L29          13 SEA SPE=ON  ABB=ON  PLU=ON  L27 AND (PD<=20030425 OR
                PRD<=20030425 OR AD<=20030425)
L30          13 SEA SPE=ON  ABB=ON  PLU=ON  L28 OR L29



     FILE 'ZCAPLUS' ENTERED AT 10:51:22 ON 16 SEP 2009
L31             QUE SPE=ON  ABB=ON  PLU=ON  PROTON# (2A) (CONDUCT? OR
                EXCHANG?) OR PEFC#
L32          31 SEA SPE=ON  ABB=ON  PLU=ON  L10 (L) L31
L33          28 SEA SPE=ON  ABB=ON  PLU=ON  L14 (L) L31
                D L33 KWIC
L34           2 SEA SPE=ON  ABB=ON  PLU=ON  L32 AND PY<=2003 NOT P/DT
L35           9 SEA SPE=ON  ABB=ON  PLU=ON  L32 AND (PD<=20030425 OR
                PRD<=20030425 OR AD<=20030425) AND P/DT
L36          11 SEA SPE=ON  ABB=ON  PLU=ON  L34 OR L35
L37           1 SEA SPE=ON  ABB=ON  PLU=ON  L33 AND PY<=2003 NOT P/DT
L38          11 SEA SPE=ON  ABB=ON  PLU=ON  L33 AND (PD<=20030425 OR
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```
                PRD<=20030425 OR AD<=20030425) AND P/DT
L39           6 SEA SPE=ON  ABB=ON  PLU=ON  L38 NOT L36
L40           6 SEA SPE=ON  ABB=ON  PLU=ON  L36 NOT (L17 OR L30)
L41           6 SEA SPE=ON  ABB=ON  PLU=ON  L39 NOT (L17 OR L30)
                D L41 HITSTR


    FILE HOME

    FILE LREGISTRY
    LREGISTRY IS A STATIC LEARNING FILE

    CAS INFORMATION USE POLICIES, ENTER HELP USAGETERMS FOR DETAILS.

    FILE REGISTRY
    Property values tagged with IC are from the ZIC/VINITI data file
    provided by InfoChem.

    STRUCTURE FILE UPDATES:   14 SEP 2009  HIGHEST RN 1184350-41-1
    DICTIONARY FILE UPDATES:  14 SEP 2009  HIGHEST RN 1184350-41-1

    New CAS Information Use Policies, enter HELP USAGETERMS for details.

    TSCA INFORMATION NOW CURRENT THROUGH June 26, 2009.

      Please note that search-term pricing does apply when
      conducting SmartSELECT searches.

    REGISTRY includes numerically searchable data for experimental and
    predicted properties as well as tags indicating availability of
    experimental property data in the original document.  For informatio
    on property searching in REGISTRY, refer to:

    http://www.cas.org/support/stngen/stndoc/properties.html

    FILE HCAPLUS

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FILE COVERS 1907 - 16 Sep 2009 VOL 151 ISS 12
FILE LAST UPDATED: 15 Sep 2009 (20090915/ED)
REVISED CLASS FIELDS (/NCL) LAST RELOADED: Jun 2009
USPTO MANUAL OF CLASSIFICATIONS THESAURUS ISSUE DATE: Jun 2009

HCAplus now includes complete International Patent Classification (I reclassification data for the third quarter of 2009.

CAS Information Use Policies apply and are available at:

http://www.cas.org/legal/infopolicy.html

This file contains CAS Registry Numbers for easy and accurate substance identification.

The ALL, BIB, MAX, and STD display formats in the CA/CAplus family of databases have been updated to include new citing references information. This enhancement may impact record import into database management software. For additional information, refer to NEWS 9.

FILE ZCAPLUS

FILE COVERS 1907 - 16 Sep 2009 VOL 151 ISS 12
FILE LAST UPDATED: 15 Sep 2009 (20090915/ED)
REVISED CLASS FIELDS (/NCL) LAST RELOADED: Jun 2009
USPTO MANUAL OF CLASSIFICATIONS THESAURUS ISSUE DATE: Jun 2009

ZCAplus now includes complete International Patent Classification (I reclassification data for the third quarter of 2009.

CAS Information Use Policies apply and are available at:

http://www.cas.org/legal/infopolicy.html

This file contains CAS Registry Numbers for easy and accurate

substance identification.

The ALL, BIB, MAX, and STD display formats in the CA/CAplus family of databases have been updated to include new citing references information. This enhancement may impact record import into database management software. For additional information, refer to NEWS 9.

```
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L1              STR

 O Si A
 1 2 3


NODE ATTRIBUTES:
DEFAULT MLEVEL IS ATOM
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS   3

STEREO ATTRIBUTES: NONE
L4       670036 SEA FILE=REGISTRY SSS FUL L1

100.0% PROCESSED  907245 ITERATIONS                      670036 ANSWERS
SEARCH TIME: 00.00.04


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L1              STR

 O Si A
 1 2 3


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STEREO ATTRIBUTES: NONE
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SEARCH TIME: 00.00.02



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L1               STR

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 1  2  3



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GRAPH ATTRIBUTES:
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NUMBER OF NODES IS   3

STEREO ATTRIBUTES: NONE
L4        670036 SEA FILE=REGISTRY SSS FUL L1
L11              STR
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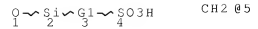

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STEREO ATTRIBUTES: NONE
L13 127 SEA FILE=REGISTRY SUB=L4 SSS FUL L11

100.0% PROCESSED 2187 ITERATIONS 127 ANSWERS
SEARCH TIME: 00.00.01

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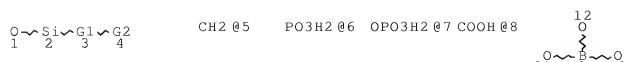
L1 STR

NODE ATTRIBUTES:
DEFAULT MLEVEL IS ATOM
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS 3

STEREO ATTRIBUTES: NONE
L4 670036 SEA FILE=REGISTRY SSS FUL L1
L23 STR



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NUMBER OF NODES IS 13

STEREO ATTRIBUTES: NONE
L25 669 SEA FILE=REGISTRY SUB=L4 SSS FUL L23

100.0% PROCESSED 27441 ITERATIONS 669 ANSWERS
SEARCH TIME: 00.00.01

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YOU HAVE REQUESTED DATA FROM FILE 'HCAPLUS' - CONTINUE? (Y)/N:y

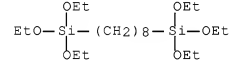
L17 ANSWER 1 OF 6 HCAPLUS COPYRIGHT 2009 ACS on STN
AN 2005:72979 HCAPLUS Full-text
DN 142:159540
TI Electrode for solid polymer fuel cell and its manufacture
IN Nishikawa, Satoru; Watanabe, Masahiro; Uchida, Hiroyuki; Miyatake, Kenji
PA Sekisui Chemical Co., Ltd., Japan; Yamanashi T.L.O. K. K.
SO Jpn. Kokai Tokkyo Koho, 31 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1
PATENT NO. KIND DATE APPLICATION NO. DATE

PI	JP 2005026207	A	20050127	JP 2004-65899	200403 09
PRAI	JP 2003-64078	A	20030310	<--	
	JP 2003-167479	A	20030612		

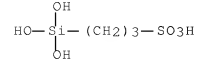
AB The electrode contains a porous conductor and a catalyst layer; where the catalyst layer is formed by a mixture of a H+-conductor and a catalyst, having Pt loaded on C black; and the H+-conductor comprises a crosslinked structure, consisting of metal-O bond by sol gel reaction, and an acid group containing structure, bonded by covalent binding with the crosslinked structure. The electrode is manufactured by mixing the required catalyst with an acid group containing compound to obtain a slurry; mixing the slurry with a hardening material to obtain a paste; applying the paste on the porous conductor to obtain a sheet material; drying; and pressing.

IT 52217-60-4, 1,8-Bis(triethoxy silyl) octane
70942-24-4
RL: TEM (Technical or engineered material use); USES (Uses)
(structure and manufacture electrodes containing catalyst load C and
proton conductors in catalyst layers fuel cells)

RN 52217-60-4 HCAPLUS
CN 3,14-Dioxa-4,13-disilahexadecane, 4,4,13,13-tetraethoxy- (CA INDEX NAME)



RN 70942-24-4 HCAPLUS
CN 1-Propanesulfonic acid, 3-(trihydroxysilyl)- (CA INDEX NAME)



IC ICM H01M004-96
ICS H01M004-88; H01M008-10
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
IT 52217-60-4, 1,8-Bis(triethoxy silyl) octane
70942-24-4
RL: TEM (Technical or engineered material use); USES (Uses)
(structure and manufacture electrodes containing catalyst load C and
proton conductors in catalyst layers fuel cells)

L17 ANSWER 2 OF 6 HCAPLUS COPYRIGHT 2009 ACS on STN
AN 2004:965518 HCAPLUS Full-text
DN 141:413617
TI Proton conductive film, its manufacture, and fuel cell using the film
IN Miyama, Toshihito; Sugimoto, Toshiya; Nomura, Shigeki
PA Sekisui Chemical Co., Ltd., Japan
SO PCT Int. Appl., 82 pp.
CODEN: PIXXD2
DT Patent
LA Japanese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI WO 2004097850	A1	20041111	WO 2004-JP5885	20040423

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RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

CA 2520827	A1	20041111	CA 2004-2520827	200404 23

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EP 1619692 A1 20060125 EP 2004-729222 200404 23
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CN 100416708 C 20080903
US 20060219981 A1 20061005 US 2005-554222 200510 24
<--
PRAI JP 2003-122766 A 20030425 <--
JP 2004-9471 A 20040116
WO 2004-JP5885 W 20040423

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

AB A proton-conductive film which is excellent in heat resistance, durability, dimensional stability, fuel-barrier properties, flexibility, etc. and has excellent proton conductivity even at high temps.; a process for producing the film; and a fuel cell which can stably work at high temps. The proton-conductive film comprises; base comprising an organic/inorg.composite structure (α) which has a crosslinked structure formed through metal oxygen bonds and has an interconnecting pore structure in which press formed inside by the crosslinked structure are interconnected; and a proton-conductive structure (β) comprising an acid-containing structure having an acid group, the pores of the base being filled with the structure (β). A fuel cell with excellent performances can be obtained by suing the proton-conductive film.

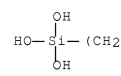
IT 154619-15-5P 273735-07-2P 770733-64-7P 792931-71-6P 792931-72-7P 792931-73-8P
RL: DEV (Device component use); IMF (Industrial manufacture); PREP (Preparation); USES (Uses)
(composite proton conductive inorg.-organic films for fuel cells)

RN 154619-15-5 HCAPLUS

CN 1-Propanesulfonic acid, 3-(trihydroxysilyl)-, polymer with silicic acid (H4SiO4) tetraethyl ester (CA INDEX NAME)

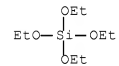
CM 1

CRN 70942-24-4
CMF C3 H10 O6 S Si



CM 2

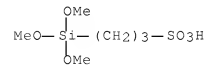
CRN 78-10-4
CMF C8 H20 O4 Si



RN 273735-07-2 HCAPLUS
CN 1-Propanesulfonic acid, 3-(trimethoxysilyl)-, polymer with silicic acid (H4SiO4) tetraethyl ester (9CI) (CA INDEX NAME)

CM 1

CRN 79059-66-8
CMF C6 H16 O6 S Si



CM 2

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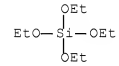
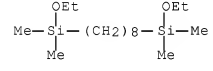
CMF C8 H20 O4 Si



RN 770733-64-7 HCAPLUS
CN 3,14-Dioxa-4,13-disilahexadecane, 4,13-diethoxy-4,13-dimethyl-, polymer with 4,4,13,13-tetramethyl-3,14-dioxa-4,13-disilahexadecane (9CI) (CA INDEX NAME)

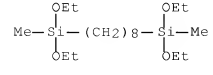
CM 1

CRN 524729-76-8
CMF C16 H38 O2 Si2



CM 2

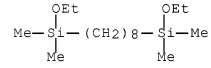
CRN 469867-63-8
CMF C18 H42 O4 Si2



RN 792931-71-6 HCAPLUS
CN 1-Propanesulfonic acid, 3-(trihydroxysilyl)-, polymer with 4,4,13,13-tetramethyl-3,14-dioxa-4,13-disilahexadecane (9CI) (CA INDEX NAME)

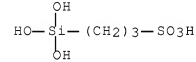
CM 1

CRN 524729-76-8
CMF C16 H38 O2 Si2



CM 2

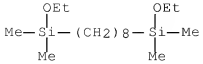
CRN 70942-24-4
CMF C3 H10 O6 S Si



RN 792931-72-7 HCAPLUS
CN 1-Propanethiol, 3-(trimethoxysilyl)-, polymer with 4,4,13,13-tetramethyl-3,14-dioxa-4,13-disilahexadecane (9CI) (CA INDEX NAME)

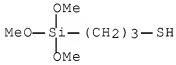
CM 1

CRN 524729-76-8
CMF C16 H38 O2 Si2



CM 2

CRN 4420-74-0
CMF C6 H16 O3 S Si



RN 792931-73-8 HCAPLUS
CN 3,14-Dioxa-4,13-disilahexadecane, 4,4,13,13-tetraethoxy-, polymer with 4,4,13,13-tetramethyl-3,14-dioxa-4,13-disilahexadecane (9CI) (CA INDEX NAME)

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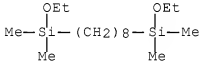
CRN 524729-76-8
CMF C16 H38 O2 Si2



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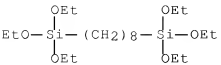
CRN 52217-60-4
CMF C20 H46 O6 Si2



IC ICM H01B001-06
ICS H01M008-02; H01M008-10
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38
IT 154619-15-5P 161000-64-2P 273735-07-2P
770733-64-7P 792931-71-6P 792931-72-7P
792931-73-8P
RL: DEV (Device component use); IMF (Industrial manufacture); PREP (Preparation); USES (Uses)
(composite proton conductive inorg.-organic films for fuel cells)
OSC.G 1 THERE ARE 1 CAPLUS RECORDS THAT CITE THIS RECORD (3 CITINGS)
RE.CNT 9 THERE ARE 9 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L17 ANSWER 3 OF 6 HCAPLUS COPYRIGHT 2009 ACS on STN
AN 2003:707003 HCAPLUS Full-text
DN 139:232996
TI Proton conductive membranes with good heat resistance and their production method
IN Nakamura, Masanori; Mori, Nobuhiro; Nomura, Shigeki
PA Sekisui Chemical Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 11 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 2003253010	A	20030910	JP 2002-52123	20020227

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PRAI JP 2002-52123 20020227 <--
AB Title membranes comprise (A) three dimensional structures having metal-oxygen bonds, (B) proton conductive materials, (C) short fiber

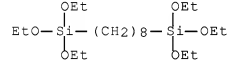
materials, and (D) long fiber materials. Thus, WEA 03C glass fiber plain fabric was immersed in a solution containing 1,8-bis(triethoxysilyl)octane, Tismo N, and tungstophosphoric acid two times, dried at 20° for 15 h, and cured at 60° for 10 h to give a proton conductive membrane with conductivity 8 10-1 S/cm, good heat and pressure difference resistance.

IT 503065-10-9P
RL: IMF (Industrial manufacture); POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(preparation of proton conductive membranes with good heat resistance)

RN 503065-10-9 HCAPLUS
CN 3,14-Dioxa-4,13-disilahexadecane, 4,4,13,13-tetraethoxy-, homopolymer (CA INDEX NAME)

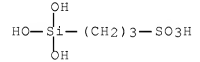
CM 1

CRN 52217-60-4
CMF C20 H46 O6 Si2



IT 70942-24-4
RL: MOA (Modifier or additive use); USES (Uses)
(proton conductor; preparation of proton conductive membranes with good heat resistance)

RN 70942-24-4 HCAPLUS
CN 1-Propanesulfonic acid, 3-(trihydroxysilyl)- (CA INDEX NAME)



IC ICM C08J005-04

ICS B01J047-12; C08K003-00; C08K007-04; C08L101-02; H01B001-06; H01B013-00; H01M008-02; H01M008-10
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 40
IT 503065-10-9P
RL: IMF (Industrial manufacture); POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(preparation of proton conductive membranes with good heat resistance)
IT 11104-88-4, Phosphomolybdic acid 70942-24-4
RL: MOA (Modifier or additive use); USES (Uses)
(proton conductor; preparation of proton conductive membranes with good heat resistance)
OSC.G 1 THERE ARE 1 CAPLUS RECORDS THAT CITE THIS RECORD (1 CITINGS)

L17 ANSWER 4 OF 6 HCAPLUS COPYRIGHT 2009 ACS on STN
AN 2003:377173 HCAPLUS Full-text
DN 138:371759
TI Proton conductive membrane, its manufacture, and fuel cell using the membrane
IN Nomura, Shigeki; Sugimoto, Toshiya; Nakamura, Masanori; Yamauti, Kenji
PA Sekisui Chemical Co., Ltd., Japan
SO PCT Int. Appl., 120 pp.
CODEN: PIXXD2
DT Patent
LA Japanese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI WO 2003041091	A1	20030515	WO 2002-JP11242	20021029
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W: CA, CN, JP, KR, US RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK, TR				
CA 2433320	A1	20030515	CA 2002-2433320	20021029
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EP 1441365	A1	20040728	EP 2002-802706	20021029

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	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI, CY, TR, BG, CZ, EE, SK				
	JP 3679104	B2	20050803	JP 2003-543039	
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	CN 1230832	C	20051207	CN 2002-803316	
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	US 20040062970	A1	20040401	US 2003-450845	
					200310 21
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	US 7214756	B2	20070508		
	HK 1063528	A1	20060317	HK 2004-106177	
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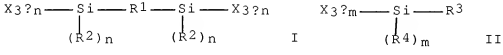
	US 20070213495	A1	20070913	US 2007-727036	
					200703 23
				<--	
PRAI	JP 2001-332977	A	20011030	<--	
	JP 2002-29781	A	20020206	<--	
	JP 2002-109493	A	20020411	<--	
	WO 2002-JP11242	W	20021029	<--	
	US 2003-450845	A3	20031021		
OS	MARPAT 138:371759				
GI					



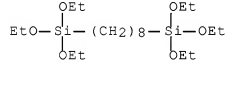
AB The membrane contains a C-containing organic-inorg. structure, crosslinked by Si-O units by covalent bonds, and an acid group cong. structure crosslinked by Si-O units by covalent bonds. Preferably, the composite structure is I, where X = a crosslinking -O- or OH, R1

= C1-50 side chain, R2 = ME, Et, PR, or Ph, and n = 0, 1, or 2; and the acid group. containing structure is II, where X = a crosslinking -O- or OH, R3 = sided chain containing ≥1 acid group, R4 = Me, Et, Pr, or Ph, and m = 0,1,or 2; and the membrane may also contain glass fibers or ceramic whiskers. The membrane is manufactured by: mixing crosslink-able silyl group containing precursors of the 2 structures, preparing membrane of the mixture, and hydrolyzing and condensate the precursors. The acid group may also be formed, after the condensation, by using precursors having function groups that can be to form acid groups by post-processing.

IT 52217-60-4DP, 1,8-Bis(triethoxysilyl)octane, hydrolyzed, condensation products with hydrolyzed silyl compds. 70942-24-4DP, hydrolyzed, condensation products with hydrolyzed silyl compds. 87135-01-1DP, 1,6-Bis(trimethoxysilyl)hexane, hydrolyzed, condensation products with hydrolyzed silyl compds. 148229-61-2DP, hydrolyzed, condensation products with hydrolyzed silyl compds. 469867-63-8DP, 1,8-Bis(diethoxymethylsilyl)octane, hydrolyzed, condensation products with hydrolyzed silyl compds. 524729-75-7DP, hydrolyzed, condensation products with hydrolyzed silyl compds., oxidized 524729-76-8DP, hydrolyzed, condensation products with hydrolyzed silyl compds., oxidized
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(compns. and manufacture of proton conductive membranes for fuel cell electrolytes)

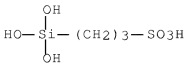
RN 52217-60-4 HCAPLUS

CN 3,14-Dioxa-4,13-disilahexadecane, 4,4,13,13-tetraethoxy- (CA INDEX NAME)

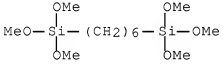


RN 70942-24-4 HCAPLUS

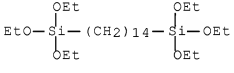
CN 1-Propanesulfonic acid, 3-(trihydroxysilyl)- (CA INDEX NAME)



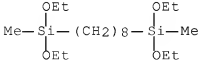
RN 87135-01-1 HCAPLUS
CN 2,11-Dioxa-3,10-disiladodecane, 3,3,10,10-tetramethoxy- (CA INDEX NAME)



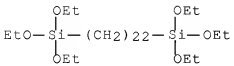
RN 148229-61-2 HCAPLUS
CN 3,20-Dioxa-4,19-disiladocosane, 4,4,19,19-tetraethoxy- (CA INDEX NAME)



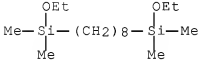
RN 469867-63-8 HCAPLUS
CN 3,14-Dioxa-4,13-disilahexadecane, 4,13-diethoxy-4,13-dimethyl- (CA INDEX NAME)



RN 524729-75-7 HCAPLUS
CN 3,28-Dioxa-4,27-disilatriacontane, 4,4,27,27-tetraethoxy- (CA INDEX NAME)



RN 524729-76-8 HCAPLUS
CN 3,14-Dioxa-4,13-disilahexadecane, 4,4,13,13-tetramethyl- (CA INDEX NAME)



IC ICM H01B001-06
ICS H01M008-02; H01M008-10; C08J005-22; C08G077-50
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
IT 4420-74-0DP, 3-Mercaptopropyltrimethoxysilane, hydrolyzed, condensation products with hydrolyzed silyl compds., oxidized 4420-74-0DP, 3-Mercaptopropyltrimethoxysilane, hydrolyzed, condensed, oxidized 7631-90-5DP, Sodium bisulfite, reaction products with hydrolyzed silyl compds. 28323-47-9DP, PSI 021, hydrolyzed, condensation products with hydrolyzed silyl compds. 31001-77-1DP, 3-Mercaptopropylmethyldimethoxysilane, hydrolyzed, condensed, oxidized 31692-79-2DP, DMS s12, hydrolyzed, condensation products with hydrolyzed silyl compds. 40372-72-3DP, SIB 1825.0, hydrolyzed, condensation products with hydrolyzed silyl compds., oxidized 51826-90-5DP, 3-Bromopropyltrimethoxysilane, hydrolyzed, condensed, reaction products with sodium bisulfite 52217-60-4DP, 1,8-Bis(triethoxysilyl)octane, hydrolyzed, condensation products with hydrolyzed silyl compds. 56706-10-6DP, KBE 886B, hydrolyzed, condensation products with hydrolyzed silyl compds., oxidized 70942-24-4DP, hydrolyzed, condensation products with hydrolyzed silyl compds. 87135-01-1DP, 1,6-Bis(trimethoxysilyl)hexane, hydrolyzed, condensation products

with hydrolyzed silyl compds. 148229-61-2DP, hydrolyzed, condensation products with hydrolyzed silyl compds. 161000-64-2DP, X-41-1805, hydrolyzed, condensation products with hydrolyzed silyl compds., oxidized 164849-42-7DP, X 40-2090, hydrolyzed, condensation products with hydrolyzed silyl compds. 469867-63-8DP, 1,8-Bis(diethoxymethylsilyl)octane, hydrolyzed, condensation products with hydrolyzed silyl compds. 469867-63-8DP, 1,8-Bis(diethoxymethylsilyl)octane, hydrolyzed, condensation products with hydrolyzed silyl compds., oxidized 524729-75-7DP, hydrolyzed, condensation products with hydrolyzed silyl compds., oxidized 524729-76-8DP, hydrolyzed, condensation products with hydrolyzed silyl compds., oxidized
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(compns. and manufacture of proton conductive membranes for fuel cell electrolytes)
OSC.G 5 THERE ARE 5 CAPLUS RECORDS THAT CITE THIS RECORD (11 CITINGS)
RE.CNT 9 THERE ARE 9 CITED REFERENCES AVAILABLE FOR THIS RECORD ALL CITATIONS AVAILABLE IN THE RE FORMAT

L17 ANSWER 5 OF 6 HCAPLUS COPYRIGHT 2009 ACS on STN
AN 2003:260048 HCAPLUS Full-text
DN 138:274077
TI Proton-conducting membrane and its manufacture for fuel cell
IN Nakamura, Masanori; Nomura, Shigeki; Goto, Yasushi
PA Sekisui Chemical Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 14 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2003100316	A	20030404	JP 2001-289364	20010921

PRAI JP 2001-289364 20010921 <--
AB The membrane comprises (A) metal-O bond-containing tridimensional crosslinked structures (e.g., heat-curable alkoxysilanes), (B) fibers (e.g., glass fibers), and preferably (C) additives for H+ conductivity (e.g., phosphotungstic acid, silicotungstic acid, phosphomolybdic acid). The membrane is manufactured by (1) mixing

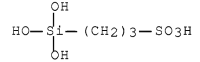
liquid substances forming A and optionally C, (2) impregnating B with the mixture, and (3) curing the impregnated material by sol-gel reaction. The membrane has high resistance to heat and chems. and is suitable for a fuel cell operated at high temperature or a direct MeOH-type fuel cell.

IT 503065-09-6P 503065-10-9P
RL: DEV (Device component use); IMF (Industrial manufacture); PREP (Preparation); USES (Uses)
(heat- and chemical resistant proton-conducting membrane and its manufacture for fuel cell)

RN 503065-09-6 HCAPLUS
CN 1-Propanesulfonic acid, 3-(trihydroxysilyl)-, polymer with 4,4,13,13-tetraethoxy-3,14-dioxa-4,13-disilahexadecane (9CI) (CA INDEX NAME)

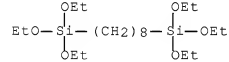
CM 1

CRN 70942-24-4
CMF C3 H10 O6 S Si



CM 2

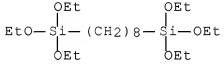
CRN 52217-60-4
CMF C20 H46 O6 Si2



RN 503065-10-9 HCAPLUS
CN 3,14-Dioxa-4,13-disilahexadecane, 4,4,13,13-tetraethoxy-, homopolymer (CA INDEX NAME)

CM 1

CRN 52217-60-4
CMF C20 H46 O6 Si2



IC ICM H01M008-02
ICS C08G077-02; C08G079-00; C08J005-24; C08K003-00; C08K007-14; C08L027-12; C08L083-02; H01B001-06; H01B013-00; H01M008-10
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38
IT 25930-91-0P, Methyltriethoxysilane homopolymer 153315-80-1P 503065-09-6P 503065-10-9P
RL: DEV (Device component use); IMF (Industrial manufacture); PREP (Preparation); USES (Uses)
(heat- and chemical resistant proton-conducting membrane and its manufacture for fuel cell)
OSC.G 6 THERE ARE 6 CAPLUS RECORDS THAT CITE THIS RECORD (6 CITINGS)

L17 ANSWER 6 OF 6 HCAPLUS COPYRIGHT 2009 ACS on STN
AN 2003:242658 HCAPLUS Full-text
DN 138:257917
TI Membrane-electrode laminate, its manufacturing method, and solid polymer fuel cell using the laminate
IN Nishikawa, Osamu; Nomura, Shigeki; Nakamura, Masanori; Sugimoto, Toshiya
PA Sekisui Chemical Co., Ltd., Japan
SO PCT Int. Appl., 75 pp.
CODEN: PIXXD2
DT Patent
LA Japanese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2003026051	A1	20030327	WO 2002-JP9144	200209

09

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W: CA, CN, JP, KR, US
RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK, TR

JP 2003178770 A 20030627 JP 2002-377330
200109
27

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CA 2428131 A1 20030327 CA 2002-2428131
200209
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EP 1427043 A1 20040609 EP 2002-760815
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R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI, CY, TR, BG, CZ, EE, SK

CN 1537340 A 20041013 CN 2002-802856
200209
09

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CN 100428549 C 20081022
JP 4009593 B2 20071114 JP 2003-529561
200209
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KR 773635 B1 20071105 KR 2003-706329
200305
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US 20040053113 A1 20040318 US 2003-415891
200309
09

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PRAI JP 2001-275259 A 20010911 <--
JP 2001-298030 A 20010927 <--
JP 2001-303239 A 20010928 <--
WO 2002-JP9144 W 20020909 <--

AB The laminate has a gas diffusion electrode bonded on both sides of a proton conductive membrane; where the binding part of the laminate contains a metal-O bond-containing tridimensionally crosslinked structure formed by a sol-gel reaction ; and is prepared by applying a liquid comprising (1) a Si containing crosslinking monomer or (2) a Si containing crosslinking monomer and a noble metal catalyst supported carbon fine particles on at least 1 side of the membrane;

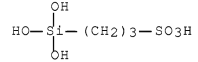
pasting (1) a catalyst supported gas diffusion electrode or (2) a gas diffusion electrode on the liquid, and curing the liquid Preferably, the tridimensionally crosslinked structure contains a proton conductive additive which is an inorg. acid.

IT 503065-09-6P 503065-10-9P
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(manufacture of electrode-membrane laminates containing crosslinking
siloxane monomers and inorg. acids for fuel cells)

RN 503065-09-6 HCAPLUS
CN 1-Propanesulfonic acid, 3-(trihydroxysilyl)-, polymer with 4,4,13,13-tetraethoxy-3,14-dioxa-4,13-disilahexadecane (9CI) (CA INDEX NAME)

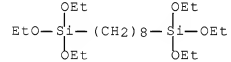
CM 1

CRN 70942-24-4
CMF C3 H10 O6 S Si



CM 2

CRN 52217-60-4
CMF C20 H46 O6 Si2



RN 503065-10-9 HCAPLUS
CN 3,14-Dioxa-4,13-disilahexadecane, 4,4,13,13-tetraethoxy-, homopolymer (CA INDEX NAME)

CM 1

CRN 52217-60-4
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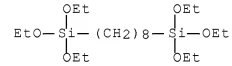
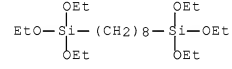
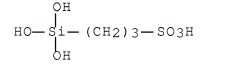


IT 52217-60-4, 1,8-Bis(triethoxysilyl)octane
70942-24-4
RL: RCT (Reactant); RACT (Reactant or reagent)
(manufacture of electrode-membrane laminates containing crosslinking
siloxane monomers and inorg. acids for fuel cells)
RN 52217-60-4 HCAPLUS
CN 3,14-Dioxa-4,13-disilahexadecane, 4,4,13,13-tetraethoxy- (CA INDEX NAME)



RN 70942-24-4 HCAPLUS
CN 1-Propanesulfonic acid, 3-(trihydroxysilyl)- (CA INDEX NAME)



IC ICM H01M008-02

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     ICS  H01M008-10
CC   52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
IT   11099-06-2P, Polytetraethoxysilane   25930-91-0P,
     Polymethyltriethoxysilane   503065-09-6P
     503065-10-9P
     RL: IMF (Industrial manufacture); TEM (Technical or engineered
     material use); PREP (Preparation); USES (Uses)
        (manufacture of electrode-membrane laminates containing
crosslinking
        siloxane monomers and inorg. acids for fuel cells)
IT   78-10-4, Tetraethoxysilane   2031-67-6, Methyltriethoxysilane
     52217-60-4, 1,8-Bis(triethoxysilyl)octane
     70942-24-4
     RL: RCT (Reactant); RACT (Reactant or reagent)
        (manufacture of electrode-membrane laminates containing
crosslinking
        siloxane monomers and inorg. acids for fuel cells)
OSC.G   5     THERE ARE 5 CAPLUS RECORDS THAT CITE THIS RECORD (8
              CITINGS)
RE.CNT  3     THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD
              ALL CITATIONS AVAILABLE IN THE RE FORMAT


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L30  ANSWER 1 OF 13  HCAPLUS  COPYRIGHT 2009 ACS on STN
AN   2003:201560  HCAPLUS  Full-text
DN   138:234473
TI   Substrate for immobilizing physiological material and method of
     fabricating same
IN   Seo, Kang-Ii; Namgoong, Ji-Na; Oh, Eun-Keu; Choi, Young-Do; Lee,
     In-Ho; Park, Tai-Jun; Kim, Hun-Soo
PA   Samsung SDI Co., Ltd., S. Korea
SO   Eur. Pat. Appl., 19 pp.
     CODEN: EPXXDW
DT   Patent
LA   English
FAN.CNT 1
     PATENT NO.          KIND   DATE        APPLICATION NO.        DATE
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PI   EP 1291655          A2     20030312    EP 2002-18203
                                                                   200208
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EP 1291655 A3 20030716
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, SK
KR 2003016767 A 20030303 KR 2001-50481
200108
21

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KR 778432 B1 20071127
US 20030072951 A1 20030417 US 2002-107721
200203
26

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US 7097882 B2 20060829
KR 2003057262 A 20030704 KR 2002-18265
200204
03

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CN 1407116 A 20030402 CN 2002-130479
200208
21

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CN 1333083 C 20070822
JP 2003177129 A 20030627 JP 2002-240370
200208
21

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JP 4233283 B2 20090304
PRAI KR 2001-50481 A 20010821 <--
US 2001-344415P P 20011228 <--
US 2002-107721 A 20020326 <--

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

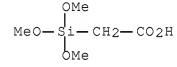
OS MARPAT 138:234473

AB A substrate for immobilizing a physiol. material is provided. The substrate comprises a substrate material; a primer layer formed on the substrate material; and an immobilization layer formed on the primer layer. The primer layer is capable of enhancing the attachment between the substrate and the immobilization layer. The substrate for immobilizing a physiol. material can provide the immobilization layer with a stable, uniform, and high d. through a simple process. A coating composition for forming a primer layer contained 3 g of tetra-Et orthosilicate in 90 g of ethanol and 7 g of water and nitric acid to adjust the pH to 2. A slide glass was dipped into and coated with the coating composition and heated at 200° to form a primer layer on the slide glass. 3-Aminopropyltrimethoxysilane, 5 g, was mixed with 15 g of water and

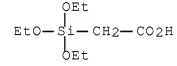
reacted at 60° for 8 h to obtain an aminosilane oligomer hydrate. The aminosilane oligomer hydrate, 10 g, was dissolved in 90 g of ethanol to provide a coating composition for forming an immobilization layer. The primer layer coated slide glass was dipped and coated in the coating composition, and then thermoset at 120° for 60 min, to form a substrate for immobilizing a physiol. material. Probe DNA was immobilized to make DNA chips.

IT 69659-09-2 207571-79-7
RL: DEV (Device component use); RCT (Reactant); TEM (Technical or engineered material use); RACT (Reactant or reagent); USES (Uses)
(in immobilization layer of substrate for attaching physiol. material; substrate with primer and immobilization layers for immobilizing physiol. material and method for its fabrication)

RN 69659-09-2 HCAPLUS
CN Acetic acid, 2-(trimethoxysilyl)- (CA INDEX NAME)

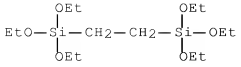


RN 207571-79-7 HCAPLUS
CN Acetic acid, 2-(triethoxysilyl)- (CA INDEX NAME)

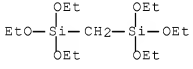


IT 16068-37-4, Bis(triethoxysilyl) ethane
18418-72-9
RL: DEV (Device component use); RCT (Reactant); TEM (Technical or engineered material use); RACT (Reactant or reagent); USES (Uses)
(in primer layer of substrate for attaching immobilization layer; substrate with primer and immobilization layers for immobilizing physiol. material and method for its fabrication)

RN 16068-37-4 HCAPLUS
CN 3,8-Dioxa-4,7-disiladecane, 4,4,7,7-tetraethoxy- (CA INDEX NAME)



RN 18418-72-9 HCAPLUS
CN 3,7-Dioxa-4,6-disilanonane, 4,4,6,6-tetraethoxy- (CA INDEX NAME)



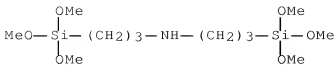
IC ICM G01N033-543
ICS G01N033-552
CC 9-16 (Biochemical Methods)
Section cross-reference(s): 3
IT 919-30-2, 3-Aminopropyltriethoxysilane 1760-24-3 4420-74-0, 3-Mercaptopropyltrimethoxysilane 13822-56-5, 3-Aminopropyltrimethoxysilane 14814-09-6, 3-Mercaptopropyltriethoxysilane 34390-22-2, Aminophenyltrimethoxysilane 69659-09-2 207571-79-7 501004-23-5 501004-24-6
RL: DEV (Device component use); RCT (Reactant); TEM (Technical or engineered material use); RACT (Reactant or reagent); USES (Uses)
(in immobilization layer of substrate for attaching physiol. material; substrate with primer and immobilization layers for immobilizing physiol. material and method for its fabrication)
IT 1071-76-7, Zirconium tetrabutoxide 3085-30-1, Aluminum tributoxide 16068-37-4, Bis(triethoxysilyl) ethane 18418-72-9 60354-74-7 211987-65-4 501004-22-4 501116-24-1
RL: DEV (Device component use); RCT (Reactant); TEM (Technical or engineered material use); RACT (Reactant or reagent); USES (Uses)
(in primer layer of substrate for attaching immobilization layer; substrate with primer and immobilization layers for immobilizing physiol. material and method for its fabrication)
OSC.G 2 THERE ARE 2 CAPLUS RECORDS THAT CITE THIS RECORD (4 CITINGS)
RE.CNT 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD

ALL CITATIONS AVAILABLE IN THE RE FORMAT

L30 ANSWER 2 OF 13 HCAPLUS COPYRIGHT 2009 ACS on STN
AN 2002:815115 HCAPLUS Full-text
DN 138:342113
TI Smart Glasses: Molecular Programming of Dynamic Responses in Organosilica Sol-Gels
AU Rao, Mukti S.; Gray, Joel; Dave, Bakul C.
CS Department of Chemistry and Biochemistry, Southern Illinois University, Carbondale, IL, 62901-4409, USA
SO Journal of Sol-Gel Science and Technology (2003), 26(1/2/3), 553-560
CODEN: JSGTEC; ISSN: 0928-0707
PB Kluwer Academic Publishers
DT Journal
LA English
AB The stimuli-responsive behavior of a new class of sol-gel-derived materials prepared from organically-modified alkoxysilane precursors is reported. Starting from judiciously selected mol. precursors, the sol-gel reaction yields a solid state glass, a mech. robust yet elastic material, that is capable of generating dynamic responses when subjected to different physicochem. stimuli. These materials represent an initial example of stimuli-responsive silica-based sol-gels that exhibit bulk volume changes and active mech. responses with respect to several environmental variables including temperature, pH, salt, and solvents. These glasses incorporate an optimum balance of hydrophobic, hydrophilic, and ionic moieties in the silica-based structure and are therefore capable of showing bulk volume changes with respect to applied physicochem. stimuli.
IT 517874-67-8P 517874-68-9P
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(ormosil; sol-gel preparation and properties of organic modified silicate glass smart materials that exhibit bulk volume changes and active mech. responses with respect to temperature, pH, salt, and solvents)
RN 517874-67-8 HCAPLUS
CN Propanoic acid, 3-(trihydroxysilyl)-, disodium salt, polymer with 3-(trimethoxysilyl)-N-[3-(trimethoxysilyl)propyl]-1-propanamine (9CI) (CA INDEX NAME)

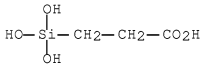
CM 1

CRN 82985-35-1
CMF C12 H31 N O6 Si2



CM 2

CRN 18191-40-7
CMF C3 H8 O5 Si . 2 Na

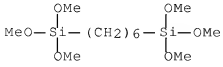


●2 Na

RN 517874-68-9 HCAPLUS
CN 1-Propanamine, 3-(trimethoxysilyl)-N-[3-(trimethoxysilyl)propyl]-, polymer with 3,3,10,10-tetramethoxy-2,11-dioxa-3,10-disiladodecane (9CI) (CA INDEX NAME)

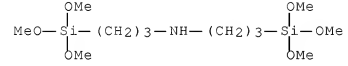
CM 1

CRN 87135-01-1
CMF C12 H30 O6 Si2

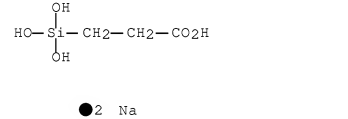


CM 2

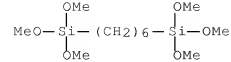
CRN 82985-35-1
CMF C12 H31 N O6 Si2



IT 18191-40-7 87135-01-1
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)
(precursor; sol-gel preparation and properties of organic modified silicate glass smart materials that exhibit bulk volume changes and
active mech. responses with respect to temperature, pH, salt, and solvents)
RN 18191-40-7 HCAPLUS
CN Propanoic acid, 3-(trihydroxysilyl)-, sodium salt (1:2) (CA INDEX NAME)



RN 87135-01-1 HCAPLUS
CN 2,11-Dioxa-3,10-disiladodecane, 3,3,10,10-tetramethoxy- (CA INDEX NAME)



CC 57-1 (Ceramics)
Section cross-reference(s): 47, 73
IT 517874-66-7P, Bis[3-(trimethoxysilyl)propyl]amine-trimethoxymethylsilane copolymer 517874-67-8P 517874-68-9P 517874-69-0P 517874-70-3P
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(ormosil; sol-gel preparation and properties of organic modified silicate
glass smart materials that exhibit bulk volume changes and active mech. responses with respect to temperature, pH, salt, and solvents)
IT 1185-55-3, Methyl(trimethoxy silane) 13822-56-5, 3-Aminopropyltrimethoxysilane 18191-40-7 74956-86-8 82985-35-1, Bis[3-(trimethoxysilyl)-propyl]amine 87135-01-1 103526-27-8
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)
(precursor; sol-gel preparation and properties of organic modified silicate glass smart materials that exhibit bulk volume changes and
active mech. responses with respect to temperature, pH, salt, and solvents)
OSC.G 14 THERE ARE 14 CAPLUS RECORDS THAT CITE THIS RECORD (14 CITINGS)
RE.CNT 11 THERE ARE 11 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L30 ANSWER 3 OF 13 HCAPLUS COPYRIGHT 2009 ACS on STN
AN 2001:759593 HCAPLUS Full-text
DN 135:312128
TI Mesoporous silica films with mobile ion gettering and accelerated processing
IN Mandal, Robert P.
PA Applied Materials, Inc., USA
SO Eur. Pat. Appl., 42 pp.
CODEN: EPXXDW
DT Patent
LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 1146014	A2	20011017	EP 2001-303414	20010411
				<--	
	EP 1146014	A3	20020403		
	EP 1146014	B1	20050330		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
	US 6559070	B1	20030506	US 2000-547714	20000411
				<--	
	TW 490738	B	20020611	TW 2001-90102677	20010207
				<--	
	JP 2002075983	A	20020315	JP 2001-113148	20010411
				<--	
PRAI	US 2000-547714	A	20000411	<--	

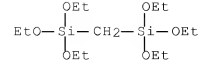
ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

AB The present invention generally provides a process and an apparatus for depositing low dielec. constant films on a substrate, as part of the process in fabrication of integrated circuits. The low dielec. constant films are phosphorus doped mesoporous oxide films formed by depositing and curing a phosphorus containing sol-gel precursor to form an oxide film having interconnecting pores of uniform diameter, and then annealing the film in an inert gas atmospheric or exposing the film to an oxidizing atmospheric containing a reactive oxygen species to form a phosphorus doped mesoporous oxide film.

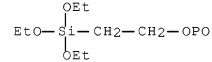
IT 18418-72-9, Bis(triethoxysilyl)methane
367266-84-0 367266-85-1
RL: RCT (Reactant); RACT (Reactant or reagent)
(mesoporous silica films with mobile ion gettering and accelerated processing for low dielec. constant film for integrated circuits)

RN 18418-72-9 HCAPLUS

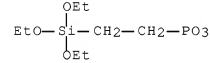
CN 3,7-Dioxa-4,6-disilanonane, 4,4,6,6-tetraethoxy- (CA INDEX NAME)



RN 367266-84-0 HCAPLUS
CN Ethanol, 2-(triethoxysilyl)-, dihydrogen phosphate (9CI) (CA INDEX NAME)



RN 367266-85-1 HCAPLUS
CN Phosphonic acid, [2-(triethoxysilyl)ethyl]- (9CI) (CA INDEX NAME)



IC ICM C01B037-02
ICS H01L021-312; H01L021-768; H01L021-316
CC 76-3 (Electric Phenomena)
Section cross-reference(s): 66
IT 78-10-4, Tetraethylorthosilicate 780-69-8, Phenyltriethoxysilane 2031-67-6, Methyltriethoxysilane 2157-42-8, Hexaethoxydisiloxane 2615-18-1, 1,4-Bis(triethoxysilyl)benzene 18418-72-9, Bis(triethoxysilyl)methane 367266-83-9 367266-84-0 367266-85-1 367266-86-2 367266-87-3 367266-88-4
RL: RCT (Reactant); RACT (Reactant or reagent)
(mesoporous silica films with mobile ion gettering and accelerated processing for low dielec. constant film for integrated
circuits)

OSC.G 7 THERE ARE 7 CAPLUS RECORDS THAT CITE THIS RECORD (7 CITINGS)
RE.CNT 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD ALL CITATIONS AVAILABLE IN THE RE FORMAT

L30 ANSWER 4 OF 13 HCAPLUS COPYRIGHT 2009 ACS on STN
AN 1997:449606 HCAPLUS Full-text
DN 127:66968
OREF 127:12793a,12796a
TI Cutting-resistant laminated films with good releasability, rear transfer resistance, and good adhesion to silicone layer
IN Miura, Sadami
PA Teijin Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 10 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 09123372	A	19970513	JP 1995-278685	19951026

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PRAI JP 1995-278685 19951026 <--

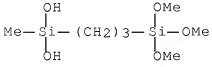
AB The laminated films are obtained by coating on a polyester film an aqueous solution containing siloxane compds. and carboxylic group-bearing polymers, followed by drying and drawing. A 3% aqueous release coating solution contained trimethylsilyl-terminated Me alkyl siloxane [alkyl = Me, glycidyloxyallyl, CH2CH2CH2CO2H, CH2CH2CH2Si(OMe)3] 71, Terephthalic acid-isophthalic acid-5-potassium sulfoisophthalic acid-trimellitic acid-ethylene glycol-diethylene glycol-neopentyl glycol copolymer 18, ethylene oxide-propylene oxide block 11 parts copolymer.

IT 191538-70-2D, trimethylsilyl-terminated
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(cutting-resistant laminated films with good releasability, rear transfer resistance, and good adhesion to silicone layer)

RN 191538-70-2 HCAPLUS
CN Butanoic acid, 4-(dihydroxymethylsilyl)-, polymer with dimethylsilanediol, methyl[3-(oxiranylmethoxy)propyl]silanediol and methyl[3-(trimethoxysilyl)propyl]silanediol (9CI) (CA INDEX NAME)

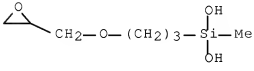
CM 1

CRN 189232-88-0
CMF C7 H20 O5 Si2



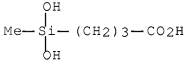
CM 2

CRN 133316-68-4
CMF C7 H16 O4 Si



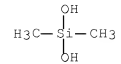
CM 3

CRN 75169-35-6
CMF C5 H12 O4 Si



CM 4

CRN 1066-42-8
CMF C2 H8 O2 Si

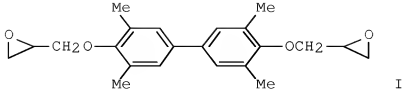


IC ICM B32B027-36
ICS B32B007-06; B32B009-00; B32B023-00; B32B027-00; B32B027-08; B32B027-30; B32B027-40; C08J007-04
CC 38-3 (Plastics Fabrication and Uses)
Section cross-reference(s): 42
IT 2530-83-8 25038-59-9, PET polyester, uses 189232-82-4 191538-68-8 191538-69-9 191538-70-2D, trimethylsilyl-terminated
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(cutting-resistant laminated films with good releasability, rear transfer resistance, and good adhesion to silicone layer)
OSC.G 1 THERE ARE 1 CAPLUS RECORDS THAT CITE THIS RECORD (1 CITINGS)

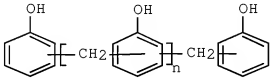
L30 ANSWER 5 OF 13 HCAPLUS COPYRIGHT 2009 ACS on STN
AN 1997:273658 HCAPLUS Full-text
DN 126:251962
OREF 126:48709a,48712a
TI Epoxy resin compositions and sealed semiconductor devices with good moisture and solder-heat resistances and moldability
IN Sato, Tatsuo
PA Toshiba Chem Prod, Japan
SO Jpn. Kokai Tokkyo Koho, 7 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 09040749	A	19970210	JP 1995-209257	19950725 <--
PRAI JP 1995-209257		19950725 <--		

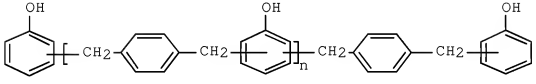
GI



I



II



III

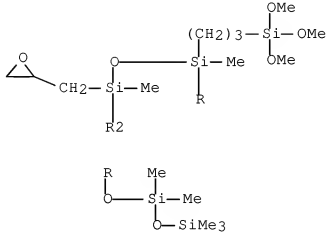
AB Title compns. comprise (A) biphenyl-type epoxy resin I, (B) phenolic resins, (C) silane coupling agents of Me3SiO(SiMe2O)l(SiMeXO)m(SiMeYO)n(SiMeZO)oSiMe3 [X = alkoxysilyl-containing group; Y = epoxy-, CO2H-, or carbinol-containing reactive organic functional group; Z = polyether, C≥2 alkyl, aralkyl group (units for enhancing compatibility with organic compds.); m, p ≥0; n, o = ≥1], (D) 25-90% (based on total composition) fused SiO2 powder (maximum particle size ≤100 μm), and (E) curing accelerators. Sealed semiconductor devices are obtained by sealing semiconductor chips with the above compns. Thus, a semiconductor chip was treated with a composition containing I 6.2, tetrabromobisphenol A-based epoxy resin 1.5, phenolic resin II (n ≥0) 1.5, phenolic resin III (n ≥1) 3.5, Ph3P 0.2, carnauba wax 0.4, carbon black 0.3, and Sb2O3 2.0% and cured to give a sealed semiconductor device showing good moisture and solder-heat resistances.

IT 183059-20-3 188652-12-2
RL: MOA (Modifier or additive use); USES (Uses)
(coupling agent; epoxy resin compns. and sealed semiconductor devices with good moisture and solder-heat resistances and moldability)

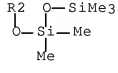
RN 183059-20-3 HCAPLUS

CN Hexasiloxane, 1,1,1,3,3,5,7,9,9,11,11,11-dodecamethyl-5-(oxiranylmethyl)-7-[3-(trimethoxysilyl)propyl]- (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 2-A



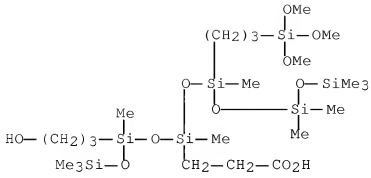
RN 188652-12-2 HCAPLUS

CN Oxirane, methyl-, polymer with oxirane, 3-[3-(2-carboxyethyl)-1,3,5,7,7,9,9,9-octamethyl-5-[3-(trimethoxysilyl)propyl]-1-[(trimethylsilyl)oxy]pentasiloxanyl]propyl methyl ether (9CI) (CA INDEX NAME)

CM 1

CRN 183059-21-4

CMF C23 H60 O11 Si7



CM 2

CRN 67-56-1
CMF C H4 O

CM 3

CRN 9003-11-6
CMF (C3 H6 O . C2 H4 O)x
CCI PMS

CM 4

CRN 75-56-9
CMF C3 H6 O

CM 5

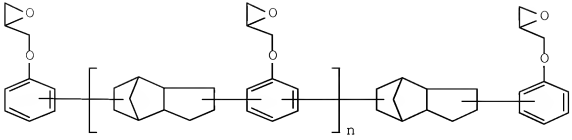
CRN 75-21-8
CMF C2 H4 O

IC ICM C08G059-24
ICS C08G059-62; C08L063-00; H01L023-29; H01L023-31
CC 37-6 (Plastics Manufacture and Processing)
Section cross-reference(s): 76
IT 183059-20-3 188652-12-2
RL: MOA (Modifier or additive use); USES (Uses)
(coupling agent; epoxy resin compns. and sealed semiconductor devices with good moisture and solder-heat resistances and moldability)

L30 ANSWER 6 OF 13 HCAPLUS COPYRIGHT 2009 ACS on STN
AN 1996:675605 HCAPLUS Full-text
DN 125:302858
OREF 125:56663a,56666a
TI Epoxy resin compositions with good moisture resistance, solder-heat resistance, and moldability and sealed semiconductor devices
IN Sato, Tatsuo
PA Toshiba Chem Prod, Japan
SO Jpn. Kokai Tokkyo Koho, 7 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 08217850	A	19960827	JP 1995-51698	199502 16
			<--	
PRAI JP 1995-51698		19950216	<--	

GI



I

AB Semiconductor chips are sealed with epoxy resin compns. containing dicyclopentadiene-based epoxy resins I (n = 0, 1), phenolic resins, coupling agents Me3SiO[Me2SiO]l[MeXSiO]m[MeYSiO]n[MeZSiO]oSiMe3 (II; X = alkoxysilyl-terminated alkyl; Y = epoxy, CO2H, or OH-terminated alkyl; Z = polyether unit, alkyl, aralkyl; l, m, n, p ≥ 1), 25-90% molten SiO2 powders with maximum particle size ≤100 μm, and curing accelerators. Thus, a blend of I 6.2, tetrabromobisphenol A-based epoxy resin 1.5, OHC6H4[CH2C6H3OH]nCH2C6H4OH 1.5, OHC6H4[CH2C6H4CH2C6H3OH]nCH2C6H4CH2C6H4OH 3.5, PPh3 0.2, carnauba waxes 0.4, carbon black 0.3, Sb2O3 2.0% was mixed with 84% molten SiO2 powder (maximum particle size 100 μm) treated with 0.4% II [X = (CH2)3Si(OMe)3, Y = glycidyl, Z = Me] to give a molding material showing spiral flow 80 cm, flow viscosity 220 P, bending strength 17.5 kg/mm2, thermal expansion coefficient 0.9 + 10-5/°, water absorption 1600 ppm, and good solder heat resistance.

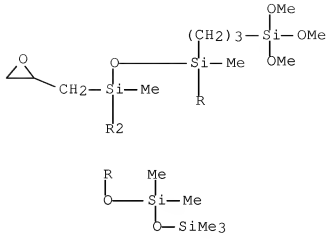
IT **183059-20-3** **183184-16-9**

RL: MOA (Modifier or additive use); USES (Uses)
(coupling agents; epoxy resin compns. with good moisture resistance, solder-heat resistance, and moldability for sealing semiconductor devices)

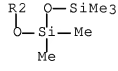
RN 183059-20-3 HCAPLUS

CN Hexasiloxane, 1,1,1,3,3,5,7,9,9,11,11,11-dodecamethyl-5-(oxiranylmethyl)-7-[3-(trimethoxysilyl)propyl]- (9CI) (CA INDEX NAME)

PAGE 1-A



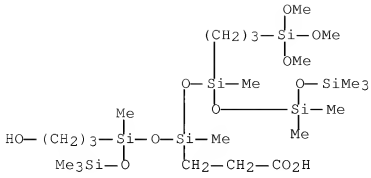
PAGE 2-A



RN 183184-16-9 HCAPLUS
CN Oxirane, methyl-, polymer with oxirane, mono[3-[3-(2-carboxyethyl)-1,3,5,7,7,9,9,9-octamethyl-5-[3-(trimethoxysilyl)propyl]-1-[(trimethylsilyl)oxy]pentasiloxanyl]propyl] ether (9CI) (CA INDEX NAME)

CM 1

CRN 183059-21-4
CMF C23 H60 O11 Si7



CM 2

CRN 9003-11-6
CMF (C3 H6 O . C2 H4 O)x
CCI PMS

CM 3

CRN 75-56-9
CMF C3 H6 O

CM 4

CRN 75-21-8
CMF C2 H4 O

IC ICM C08G059-20
ICS C08G059-62; C08L063-00; H01L023-29; H01L023-31
CC 38-3 (Plastics Fabrication and Uses)
Section cross-reference(s): 76
IT 183059-20-3 183184-16-9
RL: MOA (Modifier or additive use); USES (Uses)
(coupling agents; epoxy resin compns. with good moisture resistance, solder-heat resistance, and moldability for sealing semiconductor devices)

L30 ANSWER 7 OF 13 HCAPLUS COPYRIGHT 2009 ACS on STN
AN 1996:543782 HCAPLUS Full-text
DN 125:168996
OREF 125:31675a,31678a
TI Preparation of phosphorus-containing organosilicon compounds and polymers
IN Dauth, Jochen; Mayer, Hans; Deubzer, Bernward; Gratzl, Petra
PA Wacker-Chemie Gmbh, Germany
SO Eur. Pat. Appl., 15 pp.
CODEN: EPXXDW
DT Patent
LA German
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI EP 720985	A1	19960710	EP 1995-119828	19951215
			<--	
EP 720985	B1	20000719		
R: AT, BE, DE, FR, GB, IT, NL				
DE 19500253	A1	19960711	DE 1995-19500253	19950105
			<--	
CA 2162783	A1	19960706	CA 1995-2162783	19951114
			<--	
US 5627296	A	19970506	US 1995-559269	19951115
			<--	
AT 194842	T	20000815	AT 1995-119828	19951215

<-- FI 9600020 A 19960706 FI 1996-20 199601 03 <-- JP 08231574 A 19960910 JP 1996-223 199601 05 <-- PRAI DE 1995-19500253 A 19950105 <--

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

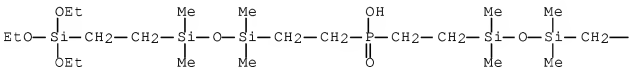
AB The title compds. and polymers, showing good hydrophilicity and/or water soly, are prepared by reacting alkali or alkaline earth metal salts of phosphinic or phosphonic acids with vinyl group-containing organosilicon compds. in the presence of a free radical catalyst. Divinyltetramethyldisiloxane was reacted with Na hypophosphite in the presence of 4,4'-azobis(4-cyanopentanoic acid) to prepare a polymer containing units O1/2SiMe2CH2CH2P(O)(ONa)CH2CH2SiMe2O1/2.

IT 180728-28-3P 180728-29-4P
RL: IMF (Industrial manufacture); PRP (Properties); PREP (Preparation)
(preparation of hydrophilic)

RN 180728-28-3 HCAPLUS

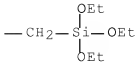
CN Phosphinic acid, bis[2-[1,1,3,3-tetramethyl-3-[2-(triethoxysilyl)ethyl]disiloxanyl]ethyl]-, sodium salt (9CI) (CA INDEX NAME)

PAGE 1-A

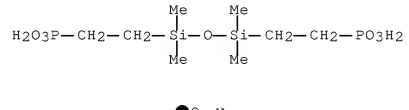


● Na

PAGE 1-B



RN 180728-29-4 HCAPLUS
CN Phosphonic acid, [(1,1,3,3-tetramethyl-1,3-disiloxanediyl)di-2,1-ethanediyl]bis-, disodium salt (9CI) (CA INDEX NAME)



●2 Na

IC ICM C07F009-30
ICS C07F009-48; C07F009-38; C08G077-48; C08G077-395
CC 35-8 (Chemistry of Synthetic High Polymers)
Section cross-reference(s): 29
IT 9016-00-6DP, Poly[oxy(dimethylsilylene)], reaction products with alkoxysilyl-terminated phosphorus-containing siloxanes 59942-04-0DP,
reaction products with sodium hypophosphite 180728-23-8P, 1,1,3,3-Tetramethyl-1,3-divinyldisiloxane-sodium hypophosphite copolymer 180728-24-9P 180728-25-0P 180728-26-1P 180728-27-2P 180728-28-3P 180728-29-4P
RL: IMF (Industrial manufacture); PRP (Properties); PREP (Preparation)
(preparation of hydrophilic)
OSC.G 5 THERE ARE 5 CAPLUS RECORDS THAT CITE THIS RECORD (5 CITINGS)

L30 ANSWER 8 OF 13 HCAPLUS COPYRIGHT 2009 ACS on STN
AN 1995:888059 HCAPLUS Full-text
DN 123:296245
OREF 123:52893a,52896a
TI Cosmetics containing reactive organopolysiloxane-coated inorganic powders
IN Noda, Isao; Shoji, Hiroaki
PA Nippon Unicar Co Ltd, Japan
SO Jpn. Kokai Tokkyo Koho, 12 pp.
CODEN: JKXXAF
DT Patent

LA Japanese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 07206637	A	19950808	JP 1994-16999	19940117

PRAI JP 1994-16999 19940117 <--

AB Cosmetics contain inorg. powders, which are surface-coated with reactive organopolysiloxanes to impart skin compatibility, water-resistance, skin softness, and product stability and durability. Thus, an oil/water-type cream contained organopolysiloxane-coated inorg. powders 10, kaolin 12, titania 5, red iron oxide 1.5, yellow iron oxide 2.0, black iron oxide 0.5, liquid paraffin 15, iso-Pr myristate 10, lanolin alc. 3, ozokerite 8, preservatives, perfumes, and talc to 100 weight%.

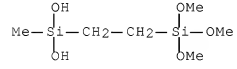
IT 169554-00-1D, trimethylsilyl terminated
169554-02-3D, trimethylsilyl terminated
169554-04-5
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
(cosmetics containing reactive organopolysiloxane-coated inorg. powders)

RN 169554-00-1 HCAPLUS

CN Silanediol, dimethyl-, polymer with (3-hydroxypropyl)methylsilanediol, methyloxirane, methylsilanediol, methyl[2-(trimethoxysilyl)ethyl]silanediol and oxirane, block, graft (9CI) (CA INDEX NAME)

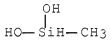
CM 1

CRN 161174-84-1
CMF C6 H18 O5 Si2



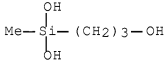
CM 2

CRN 43641-90-3
CMF C H6 O2 Si



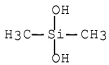
CM 3

CRN 18165-96-3
CMF C4 H12 O3 Si



CM 4

CRN 1066-42-8
CMF C2 H8 O2 Si



CM 5

CRN 75-56-9
CMF C3 H6 O

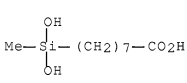
CM 6

CRN 75-21-8
CMF C2 H4 O

RN 169554-02-3 HCAPLUS
CN Octanoic acid, 8-(dihydroxymethylsilyl)-, polymer with dimethylsilanediol, methyloxirane, methylsilanediol and methyl[2-(trimethoxysilyl)ethyl]silanediol, block, graft (9CI) (CA INDEX NAME)

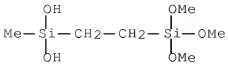
CM 1

CRN 169554-01-2
CMF C9 H20 O4 Si



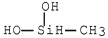
CM 2

CRN 161174-84-1
CMF C6 H18 O5 Si2



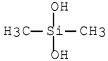
CM 3

CRN 43641-90-3
CMF C H6 O2 Si



CM 4

CRN 1066-42-8
CMF C2 H8 O2 Si



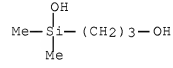
CM 5

CRN 75-56-9
CMF C3 H6 O

RN 169554-04-5 HCAPLUS
CN Silanediol, dimethyl-, polymer with (3-hydroxypropyl)dimethylsilanol, methyloxirane, methyl[3-(oxiranylmethoxy)propyl]silanediol, methyl[2-(trimethoxysilyl)ethyl]silanediol and oxirane (9CI) (CA INDEX NAME)

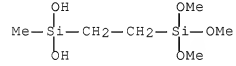
CM 1

CRN 169554-03-4
CMF C5 H14 O2 Si



CM 2

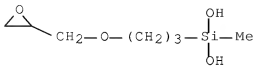
CRN 161174-84-1
CMF C6 H18 O5 Si2



CM 3

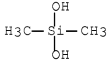
CRN 133316-68-4

CMF C7 H16 O4 Si



CM 4

CRN 1066-42-8
CMF C2 H8 O2 Si



CM 5

CRN 75-56-9
CMF C3 H6 O

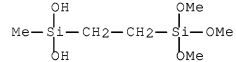
CM 6

CRN 75-21-8
CMF C2 H4 O

IT 169553-99-5D, trimethylsilyl terminated
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
(reactive, inorg. powders coating with; cosmetics containing reactive
organopolysiloxane-coated inorg. powders)
RN 169553-99-5 HCAPLUS
CN Silanediol, dimethyl-, polymer with methyloxirane, methyl[3-(oxiranylmethoxy)propyl]silanediol, methylsilanediol, methyl[2-(trimethoxysilyl)ethyl]silanediol and oxirane, block, graft (9CI) (CA INDEX NAME)

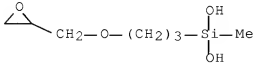
CM 1

CRN 161174-84-1
CMF C6 H18 O5 Si2



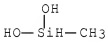
CM 2

CRN 133316-68-4
CMF C7 H16 O4 Si



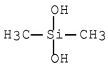
CM 3

CRN 43641-90-3
CMF C H6 O2 Si



CM 4

CRN 1066-42-8
CMF C2 H8 O2 Si



CM 5

CRN 75-56-9
CMF C3 H6 O

CM 6

CRN 75-21-8

CMF C2 H4 O

IC ICM A61K007-02
ICS C09C003-12
CC 62-4 (Essential Oils and Cosmetics)
IT 169554-00-1D, trimethylsilyl terminated
169554-02-3D, trimethylsilyl terminated
169554-04-5
RL: BUU (Biological use, unclassified); BIOL (Biological study);
USES (Uses)
(cosmetics containing reactive organopolysiloxane-coated inorg.
powders)
IT 169553-99-5D, trimethylsilyl terminated
RL: BUU (Biological use, unclassified); BIOL (Biological study);
USES (Uses)
(reactive, inorg. powders coating with; cosmetics containing
reactive
organopolysiloxane-coated inorg. powders)

L30 ANSWER 9 OF 13 HCAPLUS COPYRIGHT 2009 ACS on STN
AN 1994:78545 HCAPLUS Full-text
DN 120:78545
OREF 120:14137a,14140a
TI Reactive carboxy-terminated silicones
IN Tagami, Toshio
PA Tomoegawa Paper Co Ltd, Japan
SO Jpn. Kokai Tokkyo Koho, 9 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 05230078	A	19930907	JP 1992-72137	19920224
PRAI JP 1992-72137		19920224	<--	<--

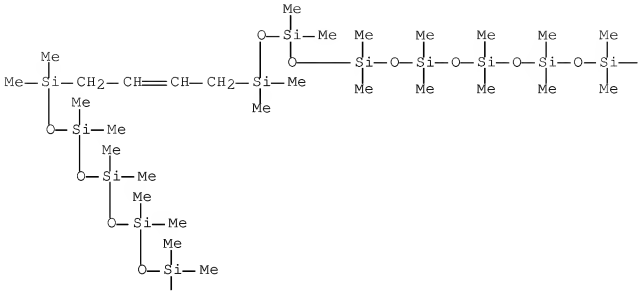
AB Title compds. HO2CZCH2CH2(SiMe2O)nSiMe2(CH2CH:CHCH2)xSiMe2(OSiMe2)nCH2CH2ZCO2H (I; Z = direct bond, C1-20 linear or branched divalent hydrocarbyl, divalent aromatic group; x = 1, 2; n = 1-200), thermally stable with good compatibility with other resins and useful as modifiers for plastics and intermediates for polyamides and polyimides (no data), are prepared Thus, trimethylchlorosilane was self-coupled, and followed by chlorinating the product (hexamethyldisilane) to give dichlorotetramethyldisilane (II). Treating II with butadiene in the presence of tetrakis(triphenylphosphine)palladium gave α,ω-bis(dimethylchlorosilyl)-2-butene, which was reduced with LiAlH4 to give α,ω-bis(dimethylsilyl)-2-butene (III). Treating III with HO(SiMe2O)8H and then with vinylacetic acid in the presence of chloroplatinic acid gave I (Z = CH2, n = 8, x = 1), which showed initial thermal decomposition temperature 216° and 50% weight loss temperature 429° vs. 194 and 440, resp., for silicone rubber with number average mol. weight (Mn) 8.6 + 103 or 250 and 325, resp., for butadiene rubber with Mn 9.6 + 103.

IT 152463-31-5P 152463-32-6P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation and reaction of, with vinylacetic acid)

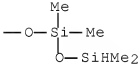
RN 152463-31-5 HCAPLUS

CN Nonasiloxane, 1,1,3,3,5,5,7,7,9,9,11,11,13,13,15,15,17,17-octadecamethyl-1-[4-(1,1,3,3,5,5,7,7,9,9,11,11,13,13,15,15,17,17-octadecamethyl-1-nonasiloxanyl)-2-buten-1-yl]- (CA INDEX NAME)

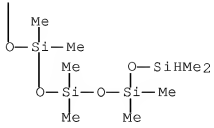
PAGE 1-A



PAGE 1-B

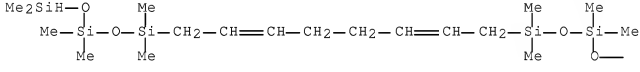


PAGE 2-A



RN 152463-32-6 HCAPLUS
CN Trisiloxane, 1-[8-(1,1,3,3,5,5-hexamethyl-1-trisiloxanyl)-2,6-octadien-1-yl]-1,1,3,3,5,5-hexamethyl- (CA INDEX NAME)

PAGE 1-A



PAGE 1-B

—SiHMe2

IT 152463-33-7P 152463-34-8P
152463-35-9P 152463-36-0P
RL: PREP (Preparation)
(preparation of, heat-resistant)
RN 152463-33-7 HCAPLUS
CN 6,8,10,12,14,16,18,20,27,29,31,33,35,37,39,41-Hexadecaoxa-5,7,9,11,13,15,17,19,21,26,28,30,32,34,36,38,40,42-octadecasilahexatetracont-23-enedioic acid, 5,5,7,7,9,9,11,11,13,13,15,15,17,17,19,19,21,21,26,26,28,28,30,30,32,32,34,34,36,36,38,38,40,40,42,42-hexatriacontamethyl- (CA INDEX NAME)

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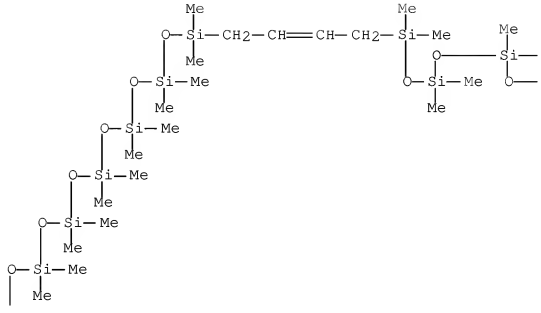

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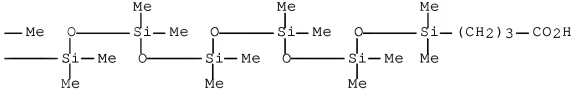
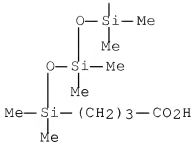
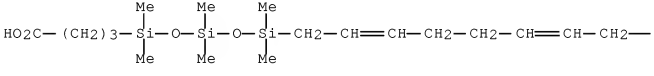


PAGE 2-A

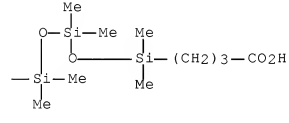


RN 152463-34-8 HCAPLUS
CN 6,8,19,21-Tetraoxa-5,7,9,18,20,22-hexasilahexacosa-11,15-dienedioic acid, 5,5,7,7,9,9,18,18,20,20,22,22-dodecamethyl- (CA INDEX NAME)

PAGE 1-A



PAGE 1-B



RN 152463-35-9 HCAPLUS
CN 13,15,17,19,21,23,25,27,34,36,38,40,42,44,46,48-Hexadecaoxa-12,14,16,18,20,22,24,26,28,33,35,37,39,41,43,45,47,49-octadecasilahexacont-30-enedioic acid,

12,12,14,14,16,16,18,18,20,20,22,22,24,24,26,26,28,28,33,33,35,35,37,37,39,39,41,41,43,43,45,45,47,47,49,49-hexatriacontamethyl- (CA INDEX NAME)

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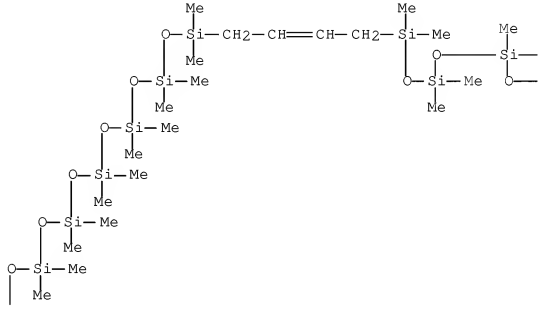
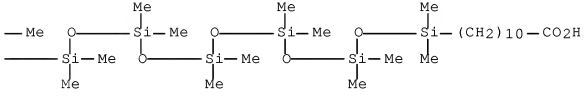


PAGE 1-B



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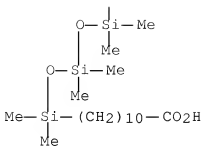

RN 152463-36-0 HCAPLUS
CN 13,15,26,28-Tetraoxa-12,14,16,25,27,29-hexasilatetraconta-18,22-dienedioic acid, 12,12,14,14,16,16,25,25,27,27,29,29-dodecamethyl- (CA INDEX NAME)

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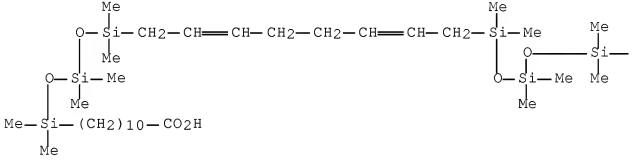

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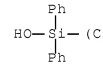
IC ICM C07F007-18
ICS C08G077-38
CC 37-3 (Plastics Manufacture and Processing)
Section cross-reference(s): 29

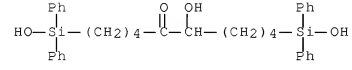
IT 152463-31-5P 152463-32-6P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation and reaction of, with vinylacetic acid)
IT 152463-33-7P 152463-34-8P
152463-35-9P 152463-36-0P
RL: PREP (Preparation)
(preparation of, heat-resistant)
OSC.G 1 THERE ARE 1 CAPLUS RECORDS THAT CITE THIS RECORD (1 CITINGS)

L30 ANSWER 10 OF 13 HCAPLUS COPYRIGHT 2009 ACS on STN
AN 1976:44263 HCAPLUS Full-text
DN 84:44263
OREF 84:7281a,7284a
TI Acylsilane photolyses. 1,1-Diphenyl-1-silacyclohexan-2-one in cyclohexane
AU Brook, A. G.; Pierce, J. B.; Duff, J. M.
CS Dep. Chem., Univ. Toronto, Toronto, ON, Can.
SO Canadian Journal of Chemistry (1975), 53(19), 2874-9
CODEN: CJCHAG; ISSN: 0008-4042
DT Journal
LA English
GI For diagram(s), see printed CA Issue.
AB Photolysis of I gave 1,1-diphenyl-1-silacyclopentane and the dimers II and III. A mechanism involving a siloxycarbene intermediate which is trapped by a 2nd acylsilane mol. is proposed for the formation of the dimers.
IT 2295-01-4P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation and lactonization of)
RN 2295-01-4 HCAPLUS
CN Pentanoic acid, 5-(hydroxydiphenylsilyl)- (CA INDEX NAME)



IT 58247-43-1P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(preparation and reduction of)
RN 58247-43-1 HCAPLUS
CN 5-Decanone, 6-hydroxy-1,10-bis(hydroxydiphenylsilyl)- (CA INDEX NAME)



CC 29-6 (Organometallic and Organometalloidal Compounds)
Section cross-reference(s): 22
IT 2295-01-4P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation and lactonization of)
IT 58247-43-1P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation and reduction of)
OSC.G 4 THERE ARE 4 CAPLUS RECORDS THAT CITE THIS RECORD (4 CITINGS)

L30 ANSWER 11 OF 13 HCAPLUS COPYRIGHT 2009 ACS on STN
AN 1966:429578 HCAPLUS Full-text
DN 65:29578
OREF 65:5487d-f
TI Unsaturated organosilicon compounds
PA Rhone-Poulenc SA
SO 21 pp.
DT Patent
LA Unavailable
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI BE 670769		19660412	BE 1967-769	19651011 <--
NL 6512858			NL	
PRAI FR		19641012 <--		

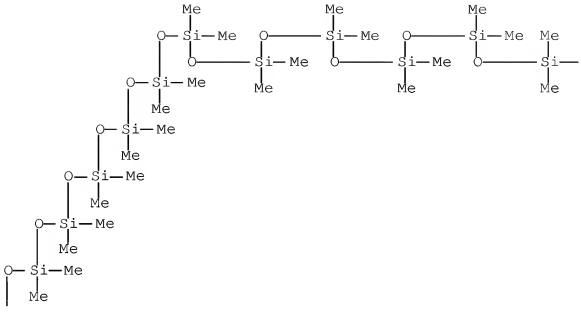
AB The title compds. are prepared by treating compds. containing at least 1 Si-Cl bond with an aldehyde or ketone containing 1 or more enolizable CO groups, in the presence of ZnCl2 and an HCl-binding agent. Thus, 100 g. Me2SiCl2 is added in 15 min. to a stirred mixture of 150 cc. C6H6, 216 g. PhCOMe, 202 g. Et3N, and 1 g. ZnCl2, refluxed 4 hrs., cooled, filtered, and distilled to give 254.5 g. (CH2:CPhO)2SiMe2, b1 128-9°, n20D 1.5558, d20 1.0537. Analogously obtained were the following [compound, b.p./mm. (at 760 mm. if omitted), n20D, and d20 given]: EtCH:CHOSiMe3, 120°, 1.4061, 0.790; Me2CH:CHOSiMe3, 119°, 1.4070, 0.792; CH2:CHMeOSiM3, 93-4°, 1.3961, 0.780; 1-cyclohexenyloxytrimethylsilane, 165°, 1.4461, 0.882; (Me2CH:CHO)2SiMe2, 83-3.5°/23, 1.4308, 0.8705; [(CH2:CHMeO)2SiMeCH2]2, 102°/0.4, 1.4511, 0.963; CH2:CHOSiMe3, 74°, 1.3892, 0.7759; (CH2:CHMeO)3SiMe, 75°/19, 1.4267, 0.9285; 4:1 mixture MeCH: CMeOSiMe3-CH2:CEtOSiMe3, 117-18°, -, -; (CH2:CHMeO)2SiPh2, 134-6°/0.9, 1.5497, 1.085; (Me2CH:CHO)3SiMe, 112.5-13°/16, 1.4400, 0.9153; (MeCH:CHOSiMe)2O, 88-90°/25, 1.4130, 0.9132; CH2:CHCH:CHOSiMe3, 131°, 1.4472, 0.8237; (CH2:CHCH:CHO)2SiMe2, 54-7°/0.4, 1.4865, 0.9120; (CH2:CHCH:CHO)3SiMe, 89-92°/0.3, 1.5054, 0.9628; 1:1 mixture of Me2C:CHC(:CH2)OSiMe3-CH2:CMeCH:CMeOSiMe3, 62°/18, 1.4488, 0.8384; Me2C:CHCH:CMeOSiMe3, 77°/14, 1.4635, 0.842; Me2C:CHCH2CH:CMeCH:CHOSiMe3, 73-5°/0.3, 1.4746, 0.8593; MeCH:CHCMe:CHOSiMe3, 66-9°/15, 1.4588, 0.8394.

IT 2974-67-6P, 5,7,9,11,13,15,17,19,21,23,25-Undecaoxa-4,6,8,10,12,14,16,18,20,22,24,26-dodecasilanonacosanedioic acid, 4,4,6,6,8,8,10,10,12,12,14,14,16,16,18,18,20,20,22,22,24,24,26,26-tetracosamethyl- 6716-90-1P, 2,5-Disilahexane, 2,2,5,5-tetrakis(isopropenyloxy)-
RL: PREP (Preparation)
(preparation of)

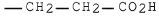
RN 2974-67-6 HCAPLUS

CN 5,7,9,11,13,15,17,19,21,23,25-Undecaoxa-4,6,8,10,12,14,16,18,20,22,24,26-dodecasilanonacosanedioic acid, 4,4,6,6,8,8,10,10,12,12,14,14,16,16,18,18,20,20,22,22,24,24,26,26-tetracosamethyl- (CA INDEX NAME)

PAGE 1-A



PAGE 1-B



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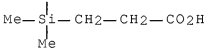
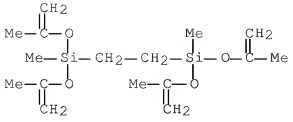


RN 6716-90-1 HCAPLUS
CN 2,5-Disilahexane, 2,2,5,5-tetrakis(isopropenyloxy)- (7CI, 8CI) (CA INDEX NAME)



CC 39 (Organometallic and Organometalloidal Compounds)
IT 1833-53-0P, Silane, (isopropenyloxy)trimethyl- 2974-67-6P
, 5,7,9,11,13,15,17,19,21,23,25-Undecaoxa-
4,6,8,10,12,14,16,18,20,22,24,26-dodecasilanonacosanedioic acid,
4,4,6,6,8,8,10,10,12,12,14,14,16,16,18,18,20,20,22,22,24,24,26,26-
tetracosamethyl- 6213-94-1P, Silane, trimethyl(vinyloxy)-
6651-32-7P, Silane, dimethylbis[(1-phenylvinyl)oxy]- 6651-33-8P,
Silane, (1-butenyloxy)trimethyl- 6651-34-9P, Silane,
trimethyl[(2-methylpropenyl)oxy]- 6651-36-1P, Silane,
(1-cyclohexen-1-yloxy)trimethyl- 6651-38-3P, Silane,
tris(isopropenyloxy)methyl- 6651-39-4P, Silane,
trimethyl[(1-methylpropenyl)oxy]- 6651-40-7P, Silane,
[(1-ethylvinyl)oxy]trimethyl- 6651-41-8P, Silane,
bis(isopropenyloxy)diphenyl- 6651-42-9P, Disiloxane,
1,1,3,3-tetramethyl-1,3-bis(propenyloxy)- 6651-43-0P, Silane,
(1,3-butadienyloxy)trimethyl- 6651-44-1P, Silane,
bis(1,3-butadienyloxy)dimethyl- 6651-45-2P, Silane,
tris(1,3-butadienyloxy)methyl- 6651-46-3P, Silane,
trimethyl[(3-methyl-1-methylene-2-butenyl)oxy]- 6651-47-4P,
Silane, [(1,3-dimethyl-1,3-butadienyl)oxy]trimethyl- 6651-48-5P,
Silane, [(1,4-dimethyl-1,3-pentadienyl)oxy]trimethyl- 6651-49-6P,
Silane, [(3,7-dimethyl-1,3,6-octatrienyl)oxy]trimethyl-
6651-50-9P, Silane, trimethyl[(2-methyl-1,3-pentadienyl)oxy]-
6716-90-1P, 2,5-Disilahexane,
2,2,5,5-tetrakis(isopropenyloxy)- 6775-46-8P, Silane,
dimethylbis[(2-methylpropenyl)oxy]- 92155-80-1P, Silane,
methyltris[(1-methylpropenyl)oxy]-
RL: PREP (Preparation)
(preparation of)
OSC.G 2 THERE ARE 2 CAPLUS RECORDS THAT CITE THIS RECORD (2
CITINGS)

L30 ANSWER 12 OF 13 HCAPLUS COPYRIGHT 2009 ACS on STN
AN 1956:73525 HCAPLUS Full-text

DN 50:73525
OREF 50:13728d-i,13729a-g
TI Organosilicon chemistry. L. Aliphatic organo-functional siloxanes. IV. Direct synthesis of organosiloxane esters and acids from halomethylsiloxanes and halomethylethoxysilanes
AU Sommer, L. H.; Masterson, J. M.; Steward, O. W.; Leitheiser, R. H.
CS Pennsylvania State Univ., Univ. Park
SO Journal of the American Chemical Society (1956), 78, 2010-15
CODEN: JACSAT; ISSN: 0002-7863
DT Journal
LA Unavailable
GI For diagram(s), see printed CA Issue.
AB cf. C.A. 50, 9281h. Me3SiOSiMe2CH2I (I) (115 g.) added rapidly with stirring to 9.2 g. Na and 64 g. CH2(CO2Et)2 (II) in 210 cc. Diethyl Carbitol (III), the mixture heated 15 hrs. with stirring at 100°, washed with two 100-cc. portions H2O, the washings extracted with C6H6, and the combined product and washings distilled gave 96.5 g. Me3SiOSiMe2.CH2OH(CO2Et)2 (IV), b7 127-8°, nD20 1.4240, d20 0.9717, MRD 84.2; saponification equivalent 160 [determined by heating 9 hrs. with KOH-(HOCH2CH2)2O on the steam bath]. A similar run with the Cl analog (V) of I gave 58-75%. I (142 g.) added during 0.5 hr. with stirring and heating at 50° to NaCH(CO2Et)2 (VI) from 96 g. II and 12 g. Na sand in 750 cc. PhMe, the mixture heated 45 hrs. with stirring at 105°, cooled, and filtered, and the filtrate fractionated gave 50% IV. O(SiMe2CH2I)2 (VII), b6 120°, nD20 1.5255 [prepared from the di-Cl analog (VIII) of VII and NaI in Me2CO], (207 g.) added during 0.5 hr. with stirring at 50° to VI from 192 g. II and 23 g. Na sand in 1.4 l. PhMe, and the mixture refluxed 50 hrs. with stirring gave 97 g. 1,1-dicarbethoxy-3,3,5,5-tetramethyl-3,5-disila-4-oxacyclohexane (IX), b6-7 134°, nD20 1.4485, d20 1.043, MRD 81.8, saponification equivalent 157 (heated 20 hrs.). VIII gave similarly only 28% IX. VIII (67 g.) added during 5 min. at 40° to VI from 96 g. II and 13.8 g. Na in 250 cc. III, and the mixture heated I 8 hrs. with stirring at 110-15° yielded 58.2 g. IX, b10 141-2°, nD20 1.4430-1.4480; careful fractionation gave material, nD20 1.4440-1.4455, which was hydrolyzed and decarboxylated to yield 30 g. 1-carboxy-3,3,5,5-tetramethyl-3,5-disila-4-oxacyclohexane (X), m. 144°. VII treated with VI in III and the product hydrolyzed and decarboxylated yielded about 50% X. Iodomethylheptamethylcyclotetrasiloxane (XI) (149 g.), b0.7 66°, nD20 1.4449, d20 1.2897, MRD 87.2 [prepared in 83% yield from the Cl analog (XII) of XI and NaI in Me2CO], in 50 cc. III heated to 100°, and treated with stirring during 2 hrs. with VI from 8.0 g. Na and 56 g. II in 250 cc. III, the mixture cooled to room temperature, diluted with 300 cc. Et2O, washed with 500 cc. 0.5N HCl and 500 cc. H2O, the aqueous layer extracted with Et2O, and the combined Et2O solns. worked up gave 72 g.

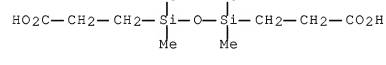
(2,2-dicarbethoxyethyl)-heptamethylcyclotetrasiloxane, b2 136°, nD20 1.4251, d20 1.0542, MRD 110.3, saponification equivalent 229 (refluxed 4 hrs. with KOH in Me Cellosolve); it was also obtained in 24% yield, b0.3 114°, nD20 1.4254, during 20 hrs. at 100° from XII. V (0.5 mole) added at 50° to 11.5 g. Na dissolved at 75° in 200 cc. Me3COH in the presence of 83 g. II, the mixture stirred 1 hr. at 85° and 15 hrs. at 75°, cooled, and washed with two 100-cc. portions H2O, the aqueous layer extracted with C6H6, and the combined organic solns. distilled gave 76.0 g. IV, b7 127° nD20 1.4240. V(196 g.) and 10 g. NaI added to VI from 1 mole Na and 1.2 moles II in 500 cc. refluxing absolute EtOH, the mixture stirred 6 hrs. and centrifuged, and the liquid distilled gave 28 g. Me3SiOEt as slightly impure azeotrope with 30% EtOH, b724 65°, nD20 1.3720; 15.2 g. EtOSiMe2CH2Cl, b47 58°, nD20 1.4151: and 26.2 g. EtOSiMe2CH2CH(CO2Et)2 (XIII), b4.5 125°, nD20 1.4299. The unfractionated XIII from a similar run hydrolyzed and decarboxylated yielded only 3 g. O(SiMe2CH2CH2CO2H)2 (XIV). IX (120 g.), 500 cc. glacial AcOH, and 150 cc. concentrated HCl refluxed 12 hrs., the EtOAc removed, and the residual mixture cooled gave 62 g. X, hard, shiny white crystals, m. 145° (from ligroine, b. 67-92°); the mother liquor gave a 2nd crop of 15 g. IV (192 g.), 500 cc. glacial AcOH, and 150 cc. concentrated HCl refluxed 24 hrs. and slowly fractionated yielded 75 g. Me2Si.CH2.CH2.CO.O (XV). XV stirred vigorously with 10 cc. H2O gave 78 g. XIV, m. 54°. NCCH2CO2Et (XVI) (35 g.) and 7.1 g. Na in 300 cc. III heated to 100°, cooled to room temperature, treated during 5 min. with 86 g. I, heated 20 hrs. with stirring at 100°, filtered, and fractionated yielded 40.4 g. Me3SiOSiMe2CH2CH(CN)CO2Et (XVII), b17 140°, nD20 1.4260, d20 0.9605, MRD 73.1. XVII was converted in the same manner as IV in 85% yield to XIV, m. 54°. X (60 g.), 500 cc. absolute EtOH, and 5 cc. concentrated HCl refluxed 18 hrs. and fractionated slowly gave 65 g. 1-carbethoxy-3,3,5,5-tetramethyl-3,5-disila-4-oxacyclohexcane (XVIII), b11 102°, nD20 1.4392, d20 0.9718, MRD 66.7, saponification equivalent 246. XVIII (192 g.) added during 45 min. with stirring to 378 g. (Me3Si)2O and 20 cc. concentrated H2SO4, the mixture stirred 24 hrs. at room temperature, and the product layer washed with H2O, dried, and distilled gave 99.9 g. unchanged XVLII, b16 109°, nD20 1.4375; and 54.7 g. 2,2,4,4,8,8,10,10-octamethyl-2,4,8,10-tetrasila-3,9- dioxa-6-carbethoxyundecane, b2 115° nD20 1.4253, d20 0.9078. IV (96.0 g.), 104 g. VIII, and 6 cc. concentrated H2SO4 stirred 20 hrs. at room temperature and the mixture washed with three 30-cc. portions aqueous NaCl, diluted With 50 cc. C6H6, and fractionated gave 0.16 mole V, 0.252 mole VIII, 0.076 mole IV, and 54.7 g. ClCH2SiMe2OSiMe2CH2CH(CO2Et)2 (XIX), b16 172°, nD20 1.4405, d20 1.052, MRD 89.1, saponification equivalent 176. XIX (60 g.) added during 10 min. with stirring at room temperature to VI from 4.0 g. Na and 28 g. II in 100 cc. III, the mixture heated 20 hrs. with stirring

at 100° cooled, washed with H2O, and the C6H6 extract of the aqueous washings fractionated yielded 35.6 g. IX, b17 152°, nD22 1.4485. V (76.3 g.) added during 15 min. to VI from 11.5 g. Na and 85 g. II in 250 cc. absolute EtOH, and the mixture refluxed 18 hrs., filtered, and fractionated gave 83.1 g. EtOSiMe2CH2CH(CO2Et)2 (XX), b15 142°, nD20 1.4295, d20 1.001, MRD 71.1, saponification equivalent 136. ClCH2SiMe2OEt (61 g.) heated 18 hrs. with stirring at 120° with VI from 9.7 g. Na and 72 g. II in 200 cc. III, filtered, and fractionated gave 61% XX. XX (41.1 g.) treated with glacial AcOH and concentrated HCl gave 95% XIV, m. 54°. NaI (10 g.) and then 182.6 g. ClCH2SiMe(OEt)2 (XXI) added to VI from 23 g. Na and 190 g. II in 500 cc. refluxing absolute EtOH yielded in the usual manner 199.5 g. (EtO)2SiMeCH2CH(CO2Et)2 (XXII), b26 172°, nD20 1.4258, d20 1.0264, MRD 76.4, saponification equivalent 157. XXI and VI in III gave 61% XXII. ClCH2SiMeCl2 treated with EtOH gave 71% XXI, b38 77°. NaCH(CN)CO2Et from 23 g. Na and 124.3 g. XVI in 500 cc. refluxing absolute EtOH treated with 10 g. NaI and then 182 g. XXI during 0.5 hr., and the mixture refluxed 0.5 hr. with stirring, filtered, and distilled gave 120 g. (EtO)2SiMeCH2CH(CN)CO2Et, b8 140°, nD20 1.4291, d20 1.017, MRD 65.74, saponification equivalent 253 (at room temperature with N KOH in Bu Cellosolve during 1 hr.).

IT 4608-02-0, 5-Oxa-4,6-disilanonanedioic acid, 4,4,6,6-tetramethyl- 18536-56-6, Propionic acid, 3-pentamethyldisiloxanyl-2-(pentamethyldisiloxanylmethyl)-, ethyl ester
(preparation of)

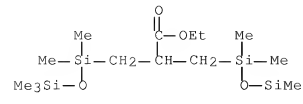
RN 4608-02-0 HCAPLUS

CN Propanoic acid, 3,3'-(1,1,3,3-tetramethyl-1,3-disiloxanediyl)bis- (9CI) (CA INDEX NAME)



RN 18536-56-6 HCAPLUS

CN Propanoic acid, 3-(1,1,3,3,3-pentamethyl-1-disiloxanyl)-2-[(1,1,3,3,3-pentamethyl-1-disiloxanyl)methyl]-, ethyl ester (CA INDEX NAME)



CC 10 (Organic Chemistry)
IT 1558-33-4, Silane, dichloro(chloromethyl)methyl- 1825-62-3, Silane, ethoxytrimethyl- 2212-10-4, Silane, (chloromethyl)diethoxymethyl- 2362-10-9, Disiloxane, 1,3-bis(chloromethyl)-1,1,3,3-tetramethyl- 2943-69-3, Disiloxane, 1,3-bis(iodomethyl)-1,1,3,3-tetramethyl- 4569-17-9, Propionic acid, 3-(hydroxydimethylsilyl)-, γ-lactone 4569-17-9, 1-Oxa-2-silacyclopentan-5-one, 2,2-dimethyl- 4608-02-0, 5-Oxa-4,6-disilanonanedioic acid, 4,4,6,6-tetramethyl- 10000-34-7, 1-Oxa-2,6-disilacyclohexane-4,4-dicarboxylic acid, 2,2,6,6-tetramethyl-, diethyl ester 10000-36-9, 1-Oxa-2,6-disilacyclohexane-4-carboxylic acid, 2,2,6,6-tetramethyl-, ethyl ester 13508-53-7, Silane, (chloromethyl)ethoxydimethyl- 17201-83-1, Disiloxane, (chloromethyl)pentamethyl- 17882-66-5, Cyclotetrasiloxane, (chloromethyl)heptamethyl- 17882-88-1, Cyclotetrasiloxane, (iodomethyl)heptamethyl- 17908-13-3, Cyclotetrasiloxane, (2,2-dicarboxyethyl)heptamethyl-, diethyl ester 17908-13-3, Malonic acid, (heptamethylcyclotetrasiloxanylmethyl)-, diethyl ester 17963-30-3, Propionic acid, 2-cyano-3-(diethoxymethylsilyl)-, ethyl ester 18052-00-1, 3-Oxa-2,4-disilaheptan-7-oic acid, 6-cyano-2,2,4,4-tetramethyl-, ethyl ester 18052-00-1, Disiloxane, (2-carboxy-2-cyanoethyl)pentamethyl-, ethyl ester 18052-00-1, Propionic acid, 2-cyano-3-pentamethyldisiloxanyl-, ethyl ester 18141-79-2, Malonic acid, [(ethoxydimethylsilyl)methyl]-, diethyl ester 18143-98-1, Disiloxane, (iodomethyl)pentamethyl- 18388-28-8, 1-Oxa-2,6-disilacyclohexane-4-carboxylic acid, 2,2,6,6-tetramethyl- 18406-87-6, Malonic acid, [(diethoxymethylsilyl)methyl]-, diethyl ester 18406-94-5, Disiloxane, 1-(chloromethyl)-3-(2,2-dicarboxyethyl)-1,1,3,3-tetramethyl-, diethyl ester 18406-94-5, Malonic acid, [[3-(chloromethyl)-1,1,3,3-tetramethyldisiloxanyl]methyl]-, diethyl ester 18406-94-5, 3-Oxa-2,4-disilahexane-6,6-dicarboxylic acid, 1-chloro-2,2,4,4-tetramethyl-, diethyl ester 18418-98-9, Disiloxane, (2,2-dicarboxyethyl)pentamethyl-, diethyl ester 18418-98-9, Malonic acid, (pentamethyldisiloxanylmethyl)-, diethyl ester 18418-98-9, 3-Oxa-2,4-disilahexane-6,6-dicarboxylic acid,

2,2,4,4-tetramethyl-, diethyl ester 18536-56-6, Propionic acid, 3-pentamethyldisiloxanyl-2-(pentamethyldisiloxanylmethyl)-, ethyl ester 18536-56-6, 3-Oxa-2,4-disilaheptan-7-oic acid, 2,2,4,4-tetramethyl-6-(pentamethyldisiloxanylmethyl)-, ethyl ester 18536-56-6, Disiloxane, (2-carboxytrimethylene)bis[pentamethyl-, ethyl ester 18536-56-6, 3,9-Dioxa-2,4,8,10-tetrasilaundecane-6-carboxylic acid, 2,2,4,4,8,8,10,10-octamethyl-, ethyl ester (preparation of)

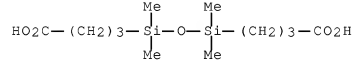
L30 ANSWER 13 OF 13 HCAPLUS COPYRIGHT 2009 ACS on STN
AN 1954:42275 HCAPLUS Full-text
DN 48:42275
OREF 48:7541a-i,7542a
TI Organosilicon chemistry. XXXIII. Aliphatic organofunctional siloxanes
AU Sommer, L. H.; Pioch, R. P.; Marans, N. S.; Goldberg, G. M.; Rockett, J.; Kerlin, J.
CS State College, PA
SO Journal of the American Chemical Society (1953), 75, 2932-4
CODEN: JACSAT; ISSN: 0002-7863
DT Journal
LA Unavailable
GI For diagram(s), see printed CA Issue.
AB cf. ibid. 1585; C.A. 47, 484e. The synthesis of 7 aliphatic organosiloxanes containing functional groups linked to C is described. The key reaction for their preparation involves the selective cleavage of 1 Me group from Me3Si derivs. by concentrated H2SO4. Me3Si(CH2)3MgBr carbonated with Dry Ice yielded 74% Me3Si(CH2)3CO2H (I), b10 118°, n20D 1.4324. Claisen condensation of the Me3Si(CH2)2CO2Et in Et2O with (iso-Pr)2NMgBr as the condensing agent yielded 81% Me3SiCH2CH(COCH2CH2SiMe3)CO2Et (II), b8 141°, n20D 1.4472, d20 0.9196. cc I (33 g.) refluxed 4 h. with 14 cc. concentrated H2SO4, 9 cc. H2O, and 73 cc. glacial AcOH gave 80% [Me3Si(CH2)2]2CO (III), b7 103°, n20D 1.4414, d20 0.8424, MRD 72.20. III (0.583 mol), 0.641 mol NH2OH.HCl, 250 cc. absolute EtOH, and 225 cc. dry pyridine heated 2 h. on the steam bath, the solvents evaporated, and the crystalline residue washed with H2O and dried in vacuo yielded 122.5 (86%) oxime (IV) of III, m. 76-6.5° (from MeOH). IV reduced with LiAlH4 in dry Et2O yielded 44% [Me3Si(CH2)2]2CHNH2 (V), b15 115°, n20D 1.4438, d20 0.8123. To 400 cc. concentrated H2SO4 was added at 10° with stirring during 1.5 h. 294 g. Me3Si(CH2)2CO2H, the mixture warmed 1 h. on the steam bath to complete the evolution of CH4 (99%), cooled, poured on ice, and the white solid precipitate filtered off and dried under an IR lamp to give 265 g. (95%)

O(SiMe2CH2CH2CO2H)2, m. 53-4°. Similarly was prepared O(SiMe2CH2CH2Ac)2, b6 142°, n20D 1.4390, in 62% yield from Me3Si(CH2)2Ac. To 5.23 g. I was added slowly with cooling and stirring 20 cc. H2SO4, the mixture warmed after 8 h. to room temperature, poured on ice, stirred and warmed to room temperature, the white solid precipitate filtered off, washed, and dried; the aqueous filtrate extracted with Et2O gave an addnl. 0.5 g. product; recrystn. of the combined product from heptane gave 4.10 g. (82%) O[SiMe2(CH2)3CO2H]2, m. 49-9.5°. In a similar run of 5 h. at 60° 21% PrCO2H was isolated and identified by the p-phenylphenacyl derivative, m. 82°. Me3Si(CH2)2NH2.HCl (15.4 g.) and 100 cc. concentrated H2SO4 heated 1 h. on the steam bath, and the mixture poured on ice, made strongly basic with NaOH, steam-distilled, acidified with concentrated HCl, and evaporated gave 85% O(SiMe2CH2CH2NH2)2 (VI).2HCl m. 267-8° (from EtOHMe2CO); a 24.2-g. sample treated in 50 cc. absolute MeOH with 11.3 g. KOH in 100 cc. dry MeOH, the mixture filtered, the MeOH distilled off, the residue extracted with Et2O, and the extract distilled gave 76% VI, b13 115°, n20D 1.4473, d20 0.9075, MRD 64.89. To 475 g. concentrated H2SO4 was added during 2.5 h. at 18° 138 g. III, the mixture stirred 1 h. at room temperature and 0.5 h. at 85° until the CH4 evolution ceased, cooled, poured on 1.5 kg. ice, the viscous organic layer extracted with three 400-cc. portions of Et2O, the extract washed with H2O, 10% aqueous NaHCO3, and again H2O, dried, rapidly distilled, and the residual viscous material (134 g.) distilled at 3-5 mm. at 230-50° vapor temperature and 370-85° pot temperature to give 112.5 g. distillate consisting of a mixture of liquid and solid; the solid, filtered off and recrystd. from 95% EtOH, gave 30.1 g. (23%) O.SiMe2.(CH2)2.CO.(CH2)2.SiMe2.O.SiMe2.(CH2)2.CO.(CH2)2.SiMe2 (VII), m. 129-30°. (Me3Si)2O (VIII) (487 g.), 35 cc. concentrated H2SO4, and 58.5 g. of the liquid polymeric byproduct of VII stirred 4 h. at room temperature, the mixture diluted with 100 cc. H2O, stirred 10 min., the organic layer washed with two 100-cc. portions of H2O, dried with K2CO3, the excess VIII distilled off, and the residue fractionated yielded 41% CO(CH2CH2SiMe2OSiMe3)2, b2 95°, n20D 1.4262, d20 0.8857, MRD 108.7. To 68 cc. concentrated H2SO4 was added during 2 h. with cooling and stirring 40 g. V, the mixture stirred 24 h. at room temperature, heated 0.5 h. at 85°, poured on ice, made strongly alkaline with KOH, extracted with four 250-cc. portions of Et2O, the extract dried with Na2SO4 and K2CO3, distilled, the residual sticky polysiloxanepolyamine (39 g.) diluted with 200 cc. iso-PrOH, treated with 40 g. KOH in 35 cc. of H2O and 310 g. VII, stirred 22 h. at 78°, cooled, washed with three 150-cc. portions of saturated aqueous NH4Cl, dried with K2CO3, the iso-PrOH and excess VII distilled off at atmospheric pressure, and the residue fractionated in vacuo to yield 49% (Me3SiOSiMe2CH2CH2)2CHNH2, b2 98°, n20D 1.4282, d20 0.8654, MRD 112.8.

IT 3353-68-2P, Disiloxane, 1,3-bis(3-carboxypropyl)-1,1,3,3-tetramethyl- 4608-02-0P , 5-Oxa-4,6-disilanonanedioic acid, 4,4,6,6-tetramethyl- 17940-49-7P, 3,11-Dioxa-2,4,10,12-tetrasilatridecane, 7-amino-2,2,4,4,10,10,12,12-octamethyl- 17940-82-8P, 3-Pentanone, 1,5-bis(pentamethyldisiloxanyl)-
RL: PREP (Preparation)
(preparation of)

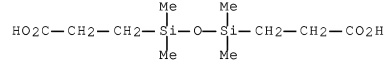
RN 3353-68-2 HCAPLUS

CN Butanoic acid, 4,4'-(1,1,3,3-tetramethyl-1,3-disiloxanediyl)bis- (CA INDEX NAME)



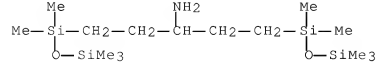
RN 4608-02-0 HCAPLUS

CN Propanoic acid, 3,3'-(1,1,3,3-tetramethyl-1,3-disiloxanediyl)bis- (9CI) (CA INDEX NAME)

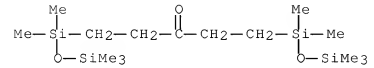


RN 17940-49-7 HCAPLUS

CN 3-Pentanamine, 1,5-bis(1,1,3,3,3-pentamethyl-1-disiloxanyl)- (CA INDEX NAME)



RN 17940-82-8 HCAPLUS
CN 3-Pentanone, 1,5-bis(1,1,3,3,3-pentamethyl-1-disiloxanyl)- (CA INDEX NAME)



CC 10 (Organic Chemistry)
IT 2345-40-6P, Butyric acid, 4-(trimethylsilyl)- 3353-68-2P , Disiloxane, 1,3-bis(3-carboxypropyl)-1,1,3,3-tetramethyl- 3353-68-2P, 6-Oxa-5,7-disilaundecanedioic acid, 5,5,7,7-tetramethyl- 3982-89-6P, Phosphinothioic chloride, diethyl- 4608-02-0P, 5-Oxa-4,6-disilanonanedioic acid, 4,4,6,6-tetramethyl- 17865-89-3P, 4-Oxa-3,5-disilaheptane-1,7-diamine, 3,3,5,5-tetramethyl- 17940-49-7P, 3,11-Dioxa-2,4,10,12-tetrasilatridecane, 7-amino-2,2,4,4,10,10,12,12-octamethyl- 17940-49-7P, Propylamine, 3-(pentamethyldisiloxanyl)-1-[2-(pentamethyldisiloxanyl)ethyl]- 17940-82-8P, 3-Pentanone, 1,5-bis(pentamethyldisiloxanyl)- 17940-82-8P , Disiloxane, 1,1'-(3-oxopentamethylene)bis[1,1,3,3,3-pentamethyl- 17940-82-8P, 3,11-Dioxa-2,4,10,12-tetrasilatridecan-7-one, 2,2,4,4,10,10,12,12-octamethyl- 17948-11-7P, Silane, (2-carboxy-3-oxopentamethylene)bis[trimethyl-, ethyl ester 17948-11-7P, Valeric acid, 3-oxo-5-(trimethylsilyl)-2-[(trimethylsilyl)methyl]-, ethyl ester 18044-31-0P, 2,8-Disilanonan-5-one, 2,2,8,8-tetramethyl-, oxime 18053-71-9P, 6-Oxa-5,7-disilaundecane-2,10-dione, 5,5,7,7-tetramethyl- 18053-95-7P, 2,8-Disilanonan-5-one, 2,2,8,8-tetramethyl- 18057-83-5P, Silane, (3-aminopentamethylene)bis[trimethyl- 18057-83-5P, Propylamine, 3-(trimethylsilyl)-1-[2-(trimethylsilyl)ethyl]- 18623-13-7P, 1,9-Dioxa-2,8,10,16-tetrasilacyclohexadecane-5,13-dione, 2,2,8,8,10,10,16,16-octamethyl-
RL: PREP (Preparation)
(preparation of)
OSC.G 3 THERE ARE 3 CAPLUS RECORDS THAT CITE THIS RECORD (3 CITINGS)

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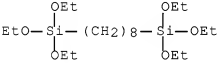
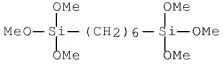
L40 ANSWER 1 OF 6 ZCAPLUS COPYRIGHT 2009 ACS on STN
AN 2005:143220 ZCAPLUS Full-text
DN 143:449901
TI High temperature proton conducting polymer electrolytes based on hydrocarbon-silicate molecular hybrids
AU Honma, I.; Nakajima, H.; Nishikawa, O.; Sugimoto, T.; Nomura, S.
CS Energy Electronic Institute, National Institute of Advanced Industrial Science and Technology, Tsukuba, Ibaraki, 305-8568, Japan
SO Transactions of the Materials Research Society of Japan (2003), 28(1), 69-72
CODEN: TMRJE3; ISSN: 1382-3469
PB Materials Research Society of Japan
DT Journal
LA English
AB Proton conducting properties of temperature tolerant bridged hydrocarbon - silicate mol. hybrid membranes have been investigated. The conductivity of the hybrid membranes based on pure hydrocarbons were found to exceed 10-2 S/cm level with various PWA doping ratios. The binary hydrocarbon hybrids between diethylbenzene /octane or hexane/octane show large conductivities exceeding 10-2 S/cm with thermal stability at 160°C under humidified condition.
IT 52217-60-4 87135-01-1
RL: NUU (Other use, unclassified); USES (Uses)
(high temperature proton conducting polymer electrolytes based on hydrocarbon-silicate mol. hybrids)
RN 52217-60-4 ZCAPLUS
CN 3,14-Dioxa-4,13-disilahexadecane, 4,4,13,13-tetraethoxy- (CA INDEX NAME)



RN 87135-01-1 ZCAPLUS
CN 2,11-Dioxa-3,10-disiladodecane, 3,3,10,10-tetramethoxy- (CA INDEX NAME)



CC 76-1 (Electric Phenomena)
Section cross-reference(s): 29, 36, 72
IT 12627-13-3, Silicate 52217-60-4 58298-01-4
87135-01-1
RL: NUU (Other use, unclassified); USES (Uses)
(high temperature proton conducting polymer
electrolytes based on hydrocarbon-silicate mol. hybrids)
RE.CNT 19 THERE ARE 19 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L40 ANSWER 2 OF 6 ZCAPLUS COPYRIGHT 2009 ACS on STN
AN 2004:261088 ZCAPLUS Full-text
DN 140:289991
TI Organic-inorganic hybrid proton-conductive material and fuel cell
IN Ono, Michio
PA Fuji Photo Film Co., Ltd., Japan; Fujifilm Corporation
SO Eur. Pat. Appl., 55 pp.
CODEN: EPXXDW
DT Patent
LA English
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI EP 1403953	A2	20040331	EP 2003-21662	20030926
			<--	
EP 1403953	A3	20090729		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
JP 2004143446	A	20040520	JP 2003-336076	20030926
			<--	
JP 4316973	B2	20090819		
US 20050100772	A1	20050512	US 2003-672190	200309

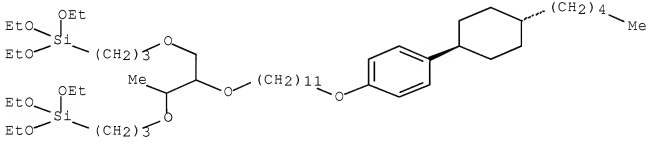
<--

US 7423078 B2 20080909
PRAI JP 2002-281356 A 20020926 <--
JP 2002-281357 A 20020926 <--
JP 2002-286894 A 20020930 <--
ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT
AB An organic-inorg. hybrid material produced by crosslinking a precursor that is an organosilicon compound having a mesogen group is disclosed. The organic-inorg. hybrid material is favorable for electrolytic membranes for fuel cells.
IT 676166-89-5P
RL: DEV (Device component use); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(organic-inorg. hybrid proton-conductive material and fuel cell)
RN 676166-89-5 ZCAPLUS
CN 3,8,12,17-Tetraoxa-4,16-disilanonadecane, 4,4,16,16-tetraethoxy-9-methyl-10-[[11-[4-(trans-4-pentylcyclohexyl)phenoxy]undecyl]oxy]-, polymer with 4,4,13,13-tetraethoxy-3,14-dioxa-4,13-disilahexadecane (9CI) (CA INDEX NAME)

CM 1

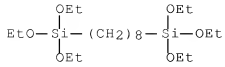
CRN 676166-68-0
CMF C50 H96 O10 Si2

Relative stereochemistry.



CM 2

CRN 52217-60-4
CMF C20 H46 O6 Si2

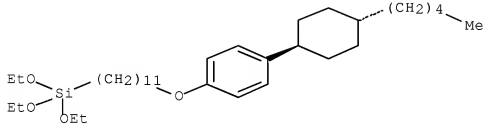


IT 676166-87-3P
RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(organic-inorg. hybrid proton-conductive material and fuel cell)
RN 676166-87-3 ZCAPLUS
CN 3,14-Dioxa-4,13-disilahexadecane, 4,4,13,13-tetraethoxy-, polymer with triethoxy[11-[4-(trans-4-pentylcyclohexyl)phenoxy]undecyl]silane (9CI) (CA INDEX NAME)

CM 1

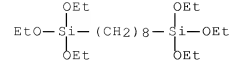
CRN 676166-67-9
CMF C34 H62 O4 Si

Relative stereochemistry.



CM 2

CRN 52217-60-4
CMF C20 H46 O6 Si2



IC ICM H01M008-10
ICS C08F030-08; C08G065-26; C07F007-18
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38, 72
IT 676166-86-2P 676166-88-4P 676166-89-5P 676166-90-8P
676166-92-0P 676166-94-2P 676166-95-3P 676166-96-4P
676166-97-5P 676166-98-6P 676166-99-7P 676167-00-3P
676167-01-4P 676167-02-5P 676167-03-6P
RL: DEV (Device component use); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(organic-inorg. hybrid proton-conductive material and fuel cell)
IT 676166-87-3P
RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(organic-inorg. hybrid proton-conductive material and fuel cell)
OSC.G 5 THERE ARE 5 CAPLUS RECORDS THAT CITE THIS RECORD (7 CITINGS)

L40 ANSWER 3 OF 6 ZCAPLUS COPYRIGHT 2009 ACS on STN
AN 2003:763588 ZCAPLUS Full-text
DN 140:129063
TI Organic/inorganic nano-composites for high temperature proton conducting polymer electrolytes
AU Honma, I.; Nakajima, H.; Nishikawa, O.; Sugimoto, T.; Nomura, S.
CS Energy Electronic Institute, Energy Materials Group, National Institute of Advanced Industrial Science and Technology, Ibaraki, Tsukuba, 305-8568, Japan
SO Solid State Ionics (2003), 162-163, 237-245
CODEN: SSIOD3; ISSN: 0167-2738
PB Elsevier Science B.V.
DT Journal
LA English
AB Temperature tolerant proton conducting membranes have attracted much attention recently because of their application to intermediate temperature operation of polymer electrolyte fuel cells (PEFC) with many technol. advantages. A new class of amphiphilic organic/inorg. hybrid membranes have been synthesized through sol-gel processing of

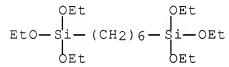
bridged polysilsesquioxanes. Membranes doped with acidic moieties such as 12-phosphotungstic acid (PWA) show large proton conductivities at temps. up to 160°. In this article, control of the proton conducting properties of the bridged alkylene hybrid membranes were investigated through modification of sol-gel processes. The conductivity of the hybrid membranes can be shifted by the equivalent PWA weight in the macromols. and the amount of processing water used for hydrolysis of the monomers. The humidity dependence of the proton conductivity is of great importance, especially for operation above 100° and was dependent on a water activity. A stable conductivity above 100°, which is weakly dependent on the relative humidity, suggests a robust conductive channel structure in the flexible macromols.

IT 163358-58-5 503065-10-9
RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
(organic/inorg. nano-composites for high temperature proton conducting polymer electrolytes)

RN 163358-58-5 ZCAPLUS
CN 3,12-Dioxa-4,11-disilatetradecane, 4,4,11,11-tetraethoxy-, homopolymer (CA INDEX NAME)

CM 1

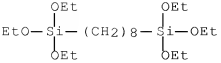
CRN 52034-16-9
CMF C18 H42 O6 Si2



RN 503065-10-9 ZCAPLUS
CN 3,14-Dioxa-4,13-disilahexadecane, 4,4,13,13-tetraethoxy-, homopolymer (CA INDEX NAME)

CM 1

CRN 52217-60-4
CMF C20 H46 O6 Si2



CC 37-6 (Plastics Manufacture and Processing)
IT 163358-58-5 503065-10-9
RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
(organic/inorg. nano-composites for high temperature proton conducting polymer electrolytes)
OSC.G 37 THERE ARE 37 CAPLUS RECORDS THAT CITE THIS RECORD (37 CITINGS)
RE.CNT 46 THERE ARE 46 CITED REFERENCES AVAILABLE FOR THIS RECORD ALL CITATIONS AVAILABLE IN THE RE FORMAT

L40 ANSWER 4 OF 6 ZCAPLUS COPYRIGHT 2009 ACS on STN
AN 2003:626436 ZCAPLUS Full-text
DN 139:165597
TI Silicone-based proton-conducting membrane, method for producing the same, and fuel cell using the same
IN Honma, Itaru; Sugimoto, Toshiya; Nomura, Shigeki
PA National Institute of Advanced Industrial Science and Technology, Japan; Sekisui Chemical Co., Ltd.
SO Eur. Pat. Appl., 1 p.
CODEN: EPXXDW
DT Patent
LA English
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI EP 1334993	A2	20030813	EP 2003-100272	20030210
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK			<--	
JP 2003242831	A	20030829	JP 2002-34115	20020212
US 20040028978	A1	20040212	<-- US 2003-361835	200302

<--

PRAI JP 2002-34115 A 20020212 <--

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

AB This invention relates to a proton conducting membrane, excellent in resistance to heat, durability, dimensional stability, flexibility, mech. strength and fuel barrier characteristics, and showing excellent proton conductivity at high temperature, method for producing the same, and fuel cell using the same. The present invention provides a proton conducting membrane comprising a three-dimensionally crosslinked structure (A) containing a silicon-oxygen bond, organic structure (B), structure (C) containing amino group and proton conducting agent (D), and a method for producing the same, comprising steps of preparing a mixture of an organic silicone compound (E) having 2 or more hydrolyzable silyl groups, organic silicon compound (F) having 1 or more hydrolyzable silyl groups and amino group, and proton conducting agent (D) as the first step; forming the above mixture into a film as the second step; and hydrolyzing/condensing the hydrolyzable silyl group contained in the mixture formed into the film, to form the three-dimensionally crosslinked structure having the silicon-oxygen bond as the third step.

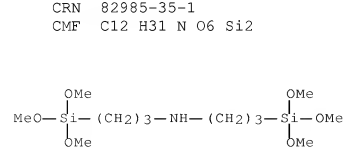
IT 577778-41-7P, 1,8-Bis(triethoxysilyl)octane-bis(trimethoxysilylpropyl)amine copolymer 577778-44-0P
RL: IMF (Industrial manufacture); POF (Polymer in formulation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(silicone-based proton-conducting membrane, method for producing the same, and fuel cell using the same)

RN 577778-41-7 ZCAPLUS

CN 1-Propanamine, 3-(trimethoxysilyl)-N-[3-(trimethoxysilyl)propyl]-, polymer with 4,4,13,13-tetraethoxy-3,14-dioxa-4,13-disilahexadecane (9CI) (CA INDEX NAME)

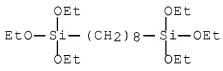
CM 1

CRN 82985-35-1
CMF C12 H31 N O6 Si2



CM 2

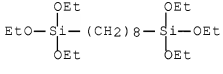
CRN 52217-60-4
CMF C20 H46 O6 Si2



RN 577778-44-0 ZCAPLUS
CN 1-Propanamine, 3-(trimethoxysilyl)-, polymer with 4,4,13,13-tetraethoxy-3,14-dioxa-4,13-disilahexadecane (9CI) (CA INDEX NAME)

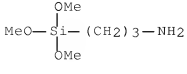
CM 1

CRN 52217-60-4
CMF C20 H46 O6 Si2



CM 2

CRN 13822-56-5
CMF C6 H17 N O3 Si



IC ICM C08J005-22
ICS H01M008-10
CC 38-3 (Plastics Fabrication and Uses)
Section cross-reference(s): 52
IT 577778-41-7P, 1,8-Bis(triethoxysilyl)octane-bis(trimethoxysilylpropyl)amine copolymer 577778-44-0P
RL: IMF (Industrial manufacture); POF (Polymer in formulation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(silicone-based proton-conducting membrane, method for producing the same, and fuel cell using the same)
OSC.G 1 THERE ARE 1 CAPLUS RECORDS THAT CITE THIS RECORD (2 CITINGS)

L40 ANSWER 5 OF 6 ZCAPLUS COPYRIGHT 2009 ACS on STN
AN 2002:807349 ZCAPLUS Full-text
DN 137:297453
TI Proton conductive membranes with good flexibility, heat resistance, and durability, production method thereof, and fuel cells therewith
IN Honma, Itaru; Sugimoto, Toshiya; Nomura, Shigeki; Nishikawa, Satoru
PA Ministry of Economy, Trade and Industry; National Industrial Research Institute, Japan; Sekisui Chemical Co., Ltd.
SO Jpn. Kokai Tokkyo Koho, 15 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2002309016	A	20021023	JP 2001-115188	20010413 <--

PRAI JP 2001-115188 20010413 <--

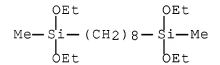
AB Title membranes comprise (A) three-dimensional crosslinked structures containing Si-O bonds, (B) carbon atom-containing structures with number average mol. weight 56-30,000 and ≥4 connected carbon atoms in main chains, and (C) agents giving proton conductivity, wherein A and B are covalently-bonded. Thus, a mixture comprising 1,8-bis(triethoxysilyl)octane 0.6, 1,8-bis(diethoxymethylsilyl)octane obtained from 11.0 g 1,7-octadiene and 26.9 g diethoxymethylsilane 0.2, and hydrated tungstophosphoric acid 0.7 g was poured into a polystyrene petri dish, kept at 20° for

15 h, and heated for 10 h under 60° saturated vapor to give a membrane with good flexibility, proton conductivity 2.0 + 10-3 S/cm at 60° and 95% RH and 2.7 + 10-3 S/cm at 140° and 100% RH, and good heat resistance at 140°.

IT 469867-63-8P, 1,8-Bis(diethoxymethylsilyl)octane
469867-65-0P
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)
(monomer; preparation of polysiloxane-based proton conductive membranes with good flexibility, heat resistance, and durability for fuel cells)

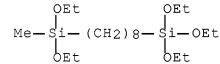
RN 469867-63-8 ZCAPLUS

CN 3,14-Dioxa-4,13-disilahexadecane, 4,13-diethoxy-4,13-dimethyl- (CA INDEX NAME)



RN 469867-65-0 ZCAPLUS

CN 3,14-Dioxa-4,13-disilahexadecane, 4,4,13-triethoxy-13-methyl- (CA INDEX NAME)



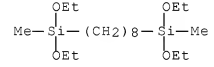
IT 469867-64-9P 469867-66-1P
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(preparation of polysiloxane-based proton conductive membranes with good flexibility, heat resistance, and durability for fuel cells)

RN 469867-64-9 ZCAPLUS

CN 3,14-Dioxa-4,13-disilahexadecane, 4,13-diethoxy-4,13-dimethyl-, polymer with 4,4,13,13-tetraethoxy-3,14-dioxa-4,13-disilahexadecane (CA INDEX NAME)

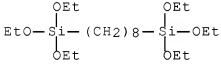
CM 1

CRN 469867-63-8
CMF C18 H42 O4 Si2



CM 2

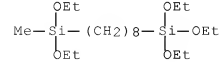
CRN 52217-60-4
CMF C20 H46 O6 Si2



RN 469867-66-1 ZCAPLUS
CN 3,14-Dioxa-4,13-disilahexadecane, 4,4,13-triethoxy-13-methyl-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 469867-65-0
CMF C19 H44 O5 Si2



IC ICM C08J005-18
ICS C08G077-50; C08K003-00; C08K003-32; C08L083-14; H01M008-02; H01M008-10
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 37, 38
IT 469867-63-8P, 1,8-Bis(diethoxymethylsilyl)octane
469867-65-0P 469867-67-2P
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)
(monomer; preparation of polysiloxane-based proton conductive membranes with good flexibility, heat resistance, and durability for fuel cells)
IT 469867-64-9P 469867-66-1P 469867-69-4P
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(preparation of polysiloxane-based proton conductive membranes with good flexibility, heat resistance, and durability for fuel cells)
OSC.G 5 THERE ARE 5 CAPLUS RECORDS THAT CITE THIS RECORD (5 CITINGS)

L40 ANSWER 6 OF 6 ZCAPLUS COPYRIGHT 2009 ACS on STN
AN 2002:538202 ZCAPLUS Full-text
DN 137:96294
TI Carbon-containing hydrolyzed siloxane polymer with sea-island morphology as proton-conducting membranes for fuel cells
IN Honma, Itaru; Nomura, Shigeki; Sugimoto, Toshiya; Nishikawa, Osamu
PA National Institute of Advanced Industrial Science and Technology, Japan; Sekisui Chemical Co., Ltd.
SO Eur. Pat. Appl., 32 pp.
CODEN: EPXXDW
DT Patent
LA English
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI EP 1223632	A2	20020717	EP 2002-356002	20020108
			<--	
EP 1223632	A3	20041124		
EP 1223632	B1	20070822		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
JP 2003157863	A	20030530	JP 2002-10	

				200201 04
			<--	
JP 3924675	B2	20070606		
KR 818598	B1	20080401	KR 2002-732	
				200201 07
			<--	
CA 2367332	A1	20020709	CA 2002-2367332	
				200201 08
			<--	
US 20030003340	A1	20030102	US 2002-38875	
				200201 08
			<--	
US 6864006	B2	20050308		
PRAI JP 2001-1862	A	20010109	<--	
JP 2001-269067	A	20010905	<--	
JP 2002-10	A	20020104	<--	

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

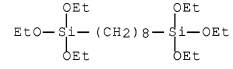
OS MARPAT 137:96294

AB A proton-conducting membrane for a fuel cell, with enhanced thermal stability, durability, dimensional stability, good fuel barrier and high-temperature proton conductivity properties are composed of a carbon-containing compound with an inorg. acid characterized by a phase-separated sea-island-type structure composed of a carbon-containing phase, containing >80 volume% of the carbon phase, and an inorg. phase, containing >80 volume% of the inorg. material, in which the inorg. phase forms continuous ion-conducting paths. The membrane is fabricated by: (1) preparing a mixture of the carbon-containing compound that contains ≥1 hydrolyzable slilyl groups, and the inorg. acid, (2) forming the mixture into a film, and (3) hydrolyzing and condensing the hydrolyzable slily groups to form a film with a three-dimensional crosslinked silicon-oxygen structure. Some general structures for the membrane materials include a carbon phase of structures -(CH2)n- (n = 2-20), -CH2CH2-(C6H4)n-CH2CH2 (n ≤4), or -O-[(SiR1R2)O]l (R1, R2 = Me, Et, and Ph; l = 2-20). The starting carbon-containing materials with hydrolyzable silyl groups are of general formula (R3)3-m-Xm-Si-R4-SiXm(R3)3-m, in which R3 = Me, Et, and Ph; R4 is hydrocarbylene; X = Cl, OMe, OEt, and OPh; and m ≤3. Especially, R4 = -(CH2)n-, -CH2CH2-(C6H4)n-CH2CH2, or -O-[(SiR1R2)O]l [R1, R2 = Me, Et, and Ph (as described above)].

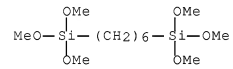
IT **52217-60-4D**, 1,8-Bis(triethoxysilyl)octane, partially hydrolyzed **87135-01-1D**, 1,6-Bis(trimethoxysilyl)hexane, partially hydrolyzed **148229-61-2D**, 3,20-Dioxa-4,19-disiladocosane, 4,4,19,19-tetraethoxy-, partially

hydrolyzed
RL: CPS (Chemical process); DEV (Device component use); NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(organic phase, membranes containing; carbon-containing hydrolyzed siloxane
polymer with sea-island morphol. as proton-conducting membranes for fuel cells)

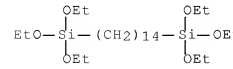
RN 52217-60-4 ZCAPLUS
CN 3,14-Dioxa-4,13-disilahexadecane, 4,4,13,13-tetraethoxy- (CA INDEX NAME)



RN 87135-01-1 ZCAPLUS
CN 2,11-Dioxa-3,10-disiladodecane, 3,3,10,10-tetramethoxy- (CA INDEX NAME)



RN 148229-61-2 ZCAPLUS
CN 3,20-Dioxa-4,19-disiladocosane, 4,4,19,19-tetraethoxy- (CA INDEX NAME)



RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(synthesis and partial hydrolysis of; carbon-contg. hydrolyzed siloxane polymer with sea-island morphol. as proton-conducting membranes for fuel cells
IC ICM H01M008-10
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38
IT 78-10-4D, Tetraethoxysilane, partially hydrolyzed
52217-60-4D, 1,8-Bis(triethoxysilyl)octane, partially hydrolyzed 60354-74-7D, Silane, (1,4-phenylenedi-2,1-ethanediyl)bis[trimethoxy-, partially hydrolyzed 87135-01-1D, 1,6-Bis(trimethoxysilyl)hexane, partially hydrolyzed 148229-61-2D, 3,20-Dioxa-4,19-disiladocosane, 4,4,19,19-tetraethoxy-, partially hydrolyzed 164849-42-7 442682-46-4D, partially hydrolyzed
RL: CPS (Chemical process); DEV (Device component use); NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(organic phase, membranes containing; carbon-containing hydrolyzed siloxane
polymer with sea-island morphol. as proton-conducting membranes for fuel cells)
IT 148229-61-2P, 3,20-Dioxa-4,19-disiladocosane, 4,4,19,19-tetraethoxy-
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(synthesis and partial hydrolysis of; carbon-containing hydrolyzed siloxane polymer with sea-island morphol. as proton-conducting membranes for fuel cells)
OSC.G 3 THERE ARE 3 CAPLUS RECORDS THAT CITE THIS RECORD (4 CITINGS)
RE.CNT 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

=> d l41 1-6 bib abs hitstr hitind

L41 ANSWER 1 OF 6 ZCAPLUS COPYRIGHT 2009 ACS on STN
AN 2004:842780 ZCAPLUS Full-text
DN 141:352712
TI Organic-inorganic hybrid type proton-conductive membrane and fuel cells
IN Wariishi, Koji; Ono, Michio
PA Fuji Photo Film Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 25 pp.
CODEN: JKXXAF

DT Patent
LA Japanese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2004288582	A	20041014	JP 2003-82371	20030325
US 20040248013	A1	20041209	US 2004-806258	20040322

PRAI JP 2003-82371 A 20030325 <--
ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

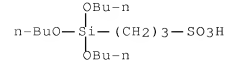
AB The disclosed proton-conductive material is prepare by sol-gel hydrolysis-condensation polymerization of a compound having an alkoxysilyl groups and polymerizable functional group with a compound having a proton doner group or its precursor group. Proton-conductive membranes and direct methanol type fuel cells prepared by using the proton conductors are also disclosed. The membranes exhibit high proton conductivity, no leaching loss of the proton conductor, good flexibility, and low methanol permeability.

IT 775304-81-9P 775304-82-0P
775304-84-2P 775304-86-4P 775304-87-5P
775304-88-6P
RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(preparation as proton conductive membranes for direct methanol fuel cells)

RN 775304-81-9 ZCAPLUS
CN 1-Propanesulfonic acid, 3-(tributoxysilyl)-, polymer with trimethoxy[3-(oxiranylmethoxy)propyl]silane (9CI) (CA INDEX NAME)

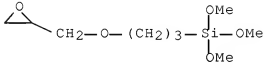
CM 1

CRN 765279-29-6
CMF C15 H34 O6 S Si



CM 2

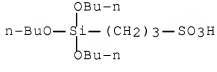
CRN 2530-83-8
CMF C9 H20 O5 Si



RN 775304-82-0 ZCAPLUS
CN 1-Propanesulfonic acid, 3-(tributoxysilyl)-, polymer with triethoxy[3-[(3-ethyl-3-oxetanyl)methoxy]propyl]silane (9CI) (CA INDEX NAME)

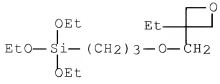
CM 1

CRN 765279-29-6
CMF C15 H34 O6 S Si



CM 2

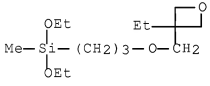
CRN 220520-33-2
CMF C15 H32 O5 Si



RN 775304-84-2 ZCAPLUS
CN 1-Propanesulfonic acid, 3-(tributoxysilyl)-, polymer with diethoxy[3-[(3-ethyl-3-oxetanyl)methoxy]propyl]methylsilane and triethoxy[3-[(3-ethyl-3-oxetanyl)methoxy]propyl]silane (9CI) (CA INDEX NAME)

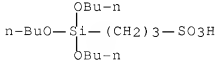
CM 1

CRN 775304-83-1
CMF C14 H30 O4 Si



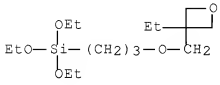
CM 2

CRN 765279-29-6
CMF C15 H34 O6 S Si



CM 3

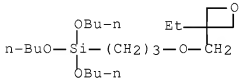
CRN 220520-33-2
CMF C15 H32 O5 Si



RN 775304-86-4 ZCAPLUS
CN 1-Propanesulfonic acid, 3-(tributoxysilyl)-, polymer with tributoxy[3-[(3-ethyl-3-oxetanyl)methoxy]propyl]silane (9CI) (CA INDEX NAME)

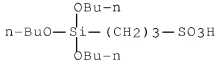
CM 1

CRN 775304-85-3
CMF C21 H44 O5 Si



CM 2

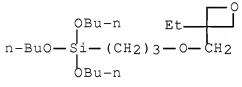
CRN 765279-29-6
CMF C15 H34 O6 S Si



RN 775304-87-5 ZCAPLUS
CN Methanesulfonic acid, (tributoxysilyl)-, polymer with tributoxy[3-[(3-ethyl-3-oxetanyl)methoxy]propyl]silane (9CI) (CA INDEX NAME)

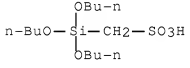
CM 1

CRN 775304-85-3
CMF C21 H44 O5 Si



CM 2

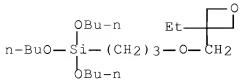
CRN 765279-30-9
CMF C13 H30 O6 S Si



RN 775304-88-6 ZCAPLUS
CN 1-Propanesulfonic acid, 3-(dibutoxymethylsilyl)-, polymer with tributoxy[3-[(3-ethyl-3-oxetanyl)methoxy]propyl]silane and 3-(tributoxysilyl)-1-propanesulfonic acid (9CI) (CA INDEX NAME)

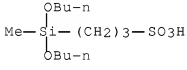
CM 1

CRN 775304-85-3
CMF C21 H44 O5 Si



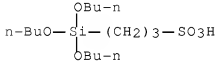
CM 2

CRN 765279-32-1
CMF C12 H28 O5 S Si



CM 3

CRN 765279-29-6
CMF C15 H34 O6 S Si



IC ICM H01B001-06
ICS C08G077-06; H01M008-02; H01M008-10
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
IT 775304-81-9P 775304-82-0P
775304-84-2P 775304-86-4P 775304-87-5P
775304-88-6P
RL: DEV (Device component use); SPN (Synthetic preparation); PREP

(Preparation); USES (Uses)
(preparation as proton conductive membranes for direct methanol fuel cells)

L41 ANSWER 2 OF 6 ZCAPLUS COPYRIGHT 2009 ACS on STN
AN 2004:796486 ZCAPLUS Full-text
DN 141:317191
TI Silica sol composition, membrane electrode assembly with proton-exchange membrane, and fuel cell
PA Fuji Photo Film Co. Ltd., Japan
SO Eur. Pat. Appl., 50 pp.
CODEN: EPXXDW
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 1463140	A2	20040929	EP 2004-7161	20040325
				<--	
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, PL, SK				
	JP 2004307814	A	20041104	JP 2003-432663	20031226
				<--	
	JP 4317005	B2	20090819		
	US 20040241522	A1	20041202	US 2004-807689	20040324
				<--	
	US 7371480	B2	20080513		
PRAI	JP 2003-82369	A	20030325	<--	
	JP 2003-82370	A	20030325	<--	
	JP 2003-432663	A	20031226		

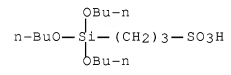
ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

AB Provided are a proton-exchange membrane of which the ionic conductivity is high and the methanol crossover is low, and a fuel cell of high power that comprises the proton-exchange membrane. The proton-exchange membrane has a structure of mesogen-containing organic mol. chains and a proton-donating group-containing group covalent-bonding to a silicon-oxygen three-dimensional crosslinked matrix, in which at least a part of the organic mol. chains are

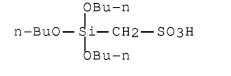
oriented to form an aggregate thereof; and the fuel cell comprises the membrane.

IT 765279-29-6P 765279-30-9P
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); PROC (Process); RACT (Reactant or reagent)
(silica sol composition, membrane electrode assembly with proton-exchange membrane, and fuel cell)

RN 765279-29-6 ZCAPLUS
CN 1-Propanesulfonic acid, 3-(tributoxysilyl)- (CA INDEX NAME)

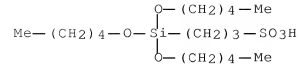


RN 765279-30-9 ZCAPLUS
CN Methanesulfonic acid, 1-(tributoxysilyl)- (CA INDEX NAME)

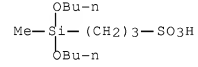


IT 765279-31-0P 765279-32-1P
765279-33-2P 765279-57-0P
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); SPN (Synthetic preparation); PREP (Preparation); PROC (Process)
(silica sol composition, membrane electrode assembly with proton-exchange membrane, and fuel cell)

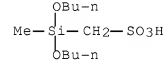
RN 765279-31-0 ZCAPLUS
CN 1-Propanesulfonic acid, 3-[tris(pentyloxy)silyl]- (CA INDEX NAME)



RN 765279-32-1 ZCAPLUS
CN 1-Propanesulfonic acid, 3-(dibutoxymethylsilyl)- (CA INDEX NAME)



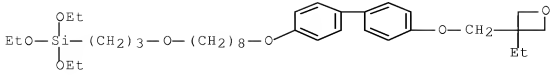
RN 765279-33-2 ZCAPLUS
CN Methanesulfonic acid, 1-(dibutoxymethylsilyl)- (CA INDEX NAME)



RN 765279-57-0 ZCAPLUS
CN 1-Propanesulfonic acid, 3-(trihydroxysilyl)-, polymer with triethoxy[3-[[8-[[4'-[(3-ethyl-3-oxetanyl)methoxy][1,1'-biphenyl]-4-yl]oxy]octyl]oxy]propyl]silane (9CI) (CA INDEX NAME)

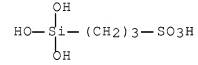
CM 1

CRN 676166-84-0
CMF C35 H56 O7 Si



CM 2

CRN 70942-24-4
CMF C3 H10 O6 S Si



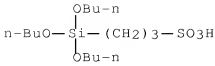
IT 765279-37-6P 765279-38-7P
765279-39-8P 765279-40-1P 765279-41-2P
765279-42-3P 765279-43-4P 765279-45-6P
765279-47-8P 765279-50-3P 765279-53-6P
765279-55-8P
RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(silica sol composition, membrane electrode assembly with proton-exchange membrane, and fuel cell)

RN 765279-37-6 ZCAPLUS

CN 1-Propanesulfonic acid, 3-(tributoxysilyl)-, polymer with triethoxy[3-[[8-[[4'-[(3-ethyl-3-oxetanyl)methoxy][1,1'-biphenyl]-4-yl]oxy]octyl]oxy]propyl]silane (9CI) (CA INDEX NAME)

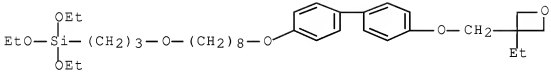
CM 1

CRN 765279-29-6
CMF C15 H34 O6 S Si



CM 2

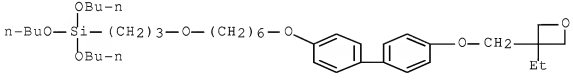
CRN 676166-84-0
CMF C35 H56 O7 Si



RN 765279-38-7 ZCAPLUS
CN Methanesulfonic acid, (tributoxysilyl)-, polymer with tributoxy[3-[[6-[[4'-[(3-ethyl-3-oxetanyl)methoxy][1,1'-biphenyl]-4-yl]oxy]hexyl]oxy]propyl]silane (9CI) (CA INDEX NAME)

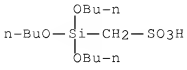
CM 1

CRN 765279-35-4
CMF C39 H64 O7 Si



CM 2

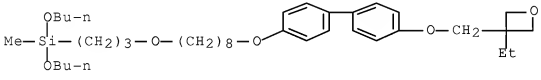
CRN 765279-30-9
CMF C13 H30 O6 S Si



RN 765279-39-8 ZCAPLUS
CN Methanesulfonic acid, (tributoxysilyl)-, polymer with dibutoxy[3-[[8-[[4'-[(3-ethyl-3-oxetanyl)methoxy][1,1'-biphenyl]-4-yl]oxy]octyl]oxy]propyl]methylsilane and tributoxy[3-[[6-[[4'-[(3-ethyl-3-oxetanyl)methoxy][1,1'-biphenyl]-4-yl]oxy]hexyl]oxy]propyl]silane (9CI) (CA INDEX NAME)

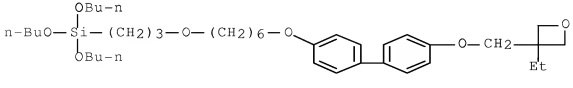
CM 1

CRN 765279-36-5
CMF C38 H62 O6 Si



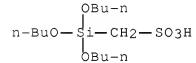
CM 2

CRN 765279-35-4
CMF C39 H64 O7 Si



CM 3

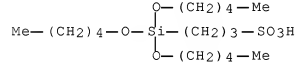
CRN 765279-30-9
CMF C13 H30 O6 S Si



RN 765279-40-1 ZCAPLUS
CN 1-Propanesulfonic acid, 3-(tributoxysilyl)-, polymer with triethoxy[3-[[8-[[4'-[(3-ethyl-3-oxetanyl)methoxy][1,1'-biphenyl]-4-yl]oxy]octyl]oxy]propyl]silane and 3-[tris(pentyloxy)silyl]-1-propanesulfonic acid (9CI) (CA INDEX NAME)

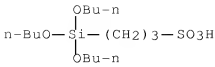
CM 1

CRN 765279-31-0
CMF C18 H40 O6 S Si



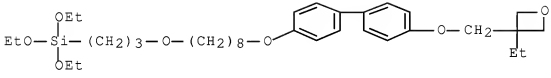
CM 2

CRN 765279-29-6
CMF C15 H34 O6 S Si



CM 3

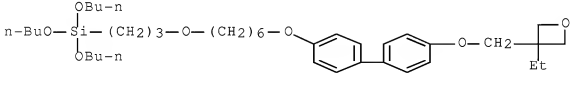
CRN 676166-84-0
CMF C35 H56 O7 Si



RN 765279-41-2 ZCAPLUS
CN 1-Propanesulfonic acid, 3-[tris(pentyloxy)silyl]-, polymer with tributoxy[3-[[6-[[4'-[(3-ethyl-3-oxetanyl)methoxy][1,1'-biphenyl]-4-yl]oxy]hexyl]oxy]propyl]silane (9CI) (CA INDEX NAME)

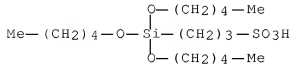
CM 1

CRN 765279-35-4
CMF C39 H64 O7 Si



CM 2

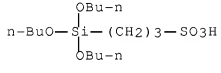
CRN 765279-31-0
CMF C18 H40 O6 S Si



RN 765279-42-3 ZCAPLUS
CN Benzoic acid, 4-[[8-[(3-ethyl-3-oxetanyl)methoxy]octyl]oxy]-, 4'-[3-(triethoxysilyl)propoxy][1,1'-biphenyl]-4-yl ester, polymer with 3-(tributoxysilyl)-1-propanesulfonic acid (9CI) (CA INDEX NAME)

CM 1

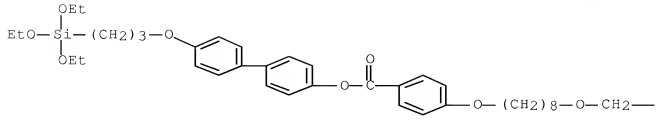
CRN 765279-29-6
CMF C15 H34 O6 S Si



CM 2

CRN 676166-80-6
CMF C42 H60 O9 Si

PAGE 1-A

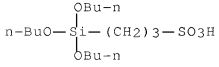


PAGE 1-B

RN 765279-43-4 ZCAPLUS
CN 1-Propanesulfonic acid, 3-(tributoxysilyl)-, polymer with 2-methyl-2-[[[8-[[4'-[(3-methyl-3-oxetanyl)methoxy][1,1'-biphenyl]-4-yl]oxy]octyl]oxy]methyl]-1,3-propanediol and triethoxy[3-[[8-[[6-[(3-ethyl-3-oxetanyl)methoxy]-2-naphthalenyl]oxy]octyl]oxy]propyl]silane (9CI) (CA INDEX NAME)

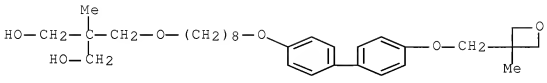
CM 1

CRN 765279-29-6
CMF C15 H34 O6 S Si



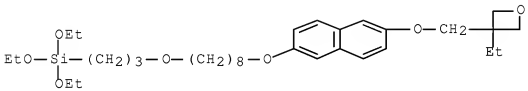
CM 2

CRN 676166-91-9
CMF C30 H44 O6



CM 3

CRN 676166-79-3
CMF C33 H54 O7 Si

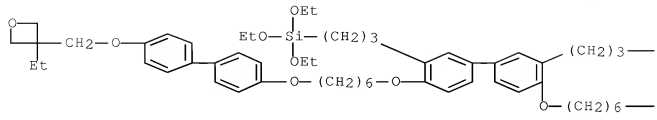


RN 765279-45-6 ZCAPLUS
CN 1-Propanesulfonic acid, 3-(tributoxysilyl)-, polymer with 3,3'-[[3,3'-bis[3-(triethoxysilyl)propyl][1,1'-biphenyl]-4,4'-diyl]bis(oxy-6,1-hexanediyloxy[1,1'-biphenyl]-4',4-diyloxymethylene)]bis[3-ethyloxetane] (9CI) (CA INDEX NAME)

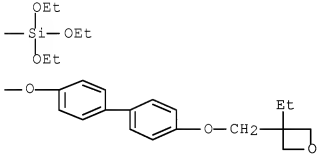
CM 1

CRN 765279-44-5
CMF C78 H110 O14 Si2

PAGE 1-A

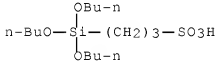


PAGE 1-B



CM 2

CRN 765279-29-6
CMF C15 H34 O6 S Si

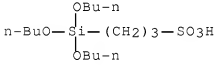


RN 765279-47-8 ZCAPLUS
CN 1-Propanesulfonic acid, 3-(tributoxysilyl)-, polymer with 2-methyl-2-[[[8-[[4'-[(3-methyl-3-oxetanyl)methoxy][1,1'-biphenyl]-4-yl]oxy]octyl]oxy]methyl]-1,3-propanediol and

triethoxy[3-[[8-[[4'-[(3-ethyl-3-oxetanyl)methoxy][1,1'-biphenyl]-4-yl]oxy]octyl]oxy]propyl]silane (9CI) (CA INDEX NAME)

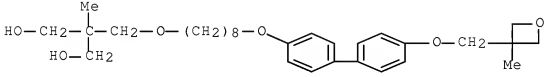
CM 1

CRN 765279-29-6
CMF C15 H34 O6 S Si



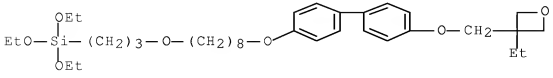
CM 2

CRN 676166-91-9
CMF C30 H44 O6



CM 3

CRN 676166-84-0
CMF C35 H56 O7 Si



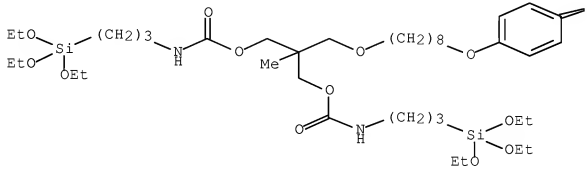
RN 765279-50-3 ZCAPLUS
CN 1-Propanesulfonic acid, 3-(tributoxysilyl)-, polymer with 2-methyl-2-[[[8-[[4'-[(3-methyl-3-oxetanyl)methoxy][1,1'-biphenyl]-4-yl]oxy]octyl]oxy]methyl]-1,3-propanediol and 2-methyl-2-[[[8-[4-(trans-4-pentylcyclohexyl)phenoxy]octyl]oxy]methyl]-1,3-propanediyl bis[[3-(triethoxysilyl)propyl]carbamate] (9CI) (CA INDEX NAME)

CM 1

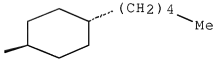
CRN 765279-49-0
CMF C50 H94 N2 O12 Si2

Relative stereochemistry.

PAGE 1-A

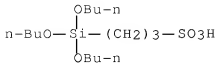


PAGE 1-B



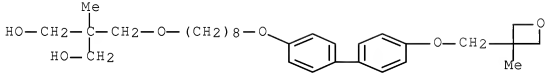
CM 2

CRN 765279-29-6
CMF C15 H34 O6 S Si



CM 3

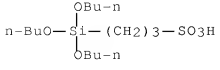
CRN 676166-91-9
CMF C30 H44 O6



RN 765279-53-6 ZCAPLUS
CN Benzoic acid, 4-[[8-[(3-ethyl-3-oxetanyl)methoxy]octyl]oxy]-, 4'-(2-propenyloxy)[1,1'-biphenyl]-4-yl ester, polymer with 3-(tributoxysilyl)-1-propanesulfonic acid and 4'-[3-(triethoxysilyl)propoxy][1,1'-biphenyl]-4-yl 4-[[8-[(3-ethyl-3-oxetanyl)methoxy]octyl]oxy]benzoate (9CI) (CA INDEX NAME)

CM 1

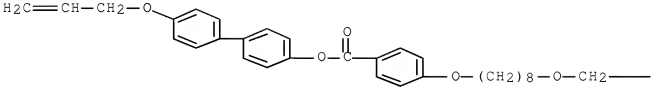
CRN 765279-29-6
CMF C15 H34 O6 S Si



CM 2

CRN 676166-82-8
CMF C36 H44 O6

PAGE 1-A

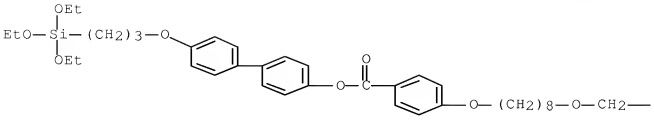


PAGE 1-B

CM 3

CRN 676166-80-6
CMF C42 H60 O9 Si

PAGE 1-A



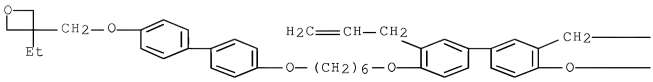
PAGE 1-B

RN 765279-55-8 ZCAPLUS
CN 1-Propanesulfonic acid, 3-(tributoxysilyl)-, polymer with 3,3'-[[3,3'-bis[3-(triethoxysilyl)propyl][1,1'-biphenyl]-4,4'-diyl]bis(oxy-6,1-hexanediyloxy[1,1'-biphenyl]-4',4-diyloxymethylene)]bis[3-ethyloxetane] and 3,3'-[(3,3'-di-2-propenyl[1,1'-biphenyl]-4,4'-diyl)bis(oxy-6,1-hexanediyloxy[1,1'-biphenyl]-4',4-diyloxymethylene)]bis[3-ethyloxetane] (9CI) (CA INDEX NAME)

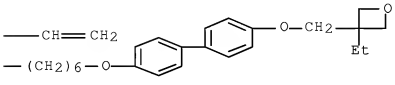
CM 1

CRN 765279-46-7
CMF C66 H78 O8

PAGE 1-A



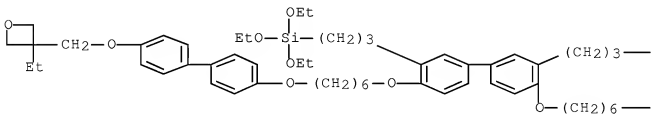
PAGE 1-B

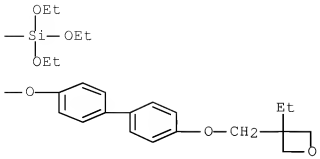


CM 2

CRN 765279-44-5
CMF C78 H110 O14 Si2

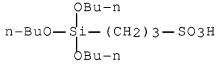
PAGE 1-A





CM 3

CRN 765279-29-6
CMF C15 H34 O6 S Si



IC ICM H01M008-10
ICS C08J005-22; H01B001-12; C08G077-00; C07F007-08
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38
IT 42169-82-4P 42169-84-6P 62896-03-1P 765279-29-6P
765279-30-9P 765279-35-4P 765279-61-6P 765279-63-8P
765279-65-0P 765279-67-2P 765279-70-7P
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); PROC (Process); RACT (Reactant or reagent)
(silica sol composition, membrane electrode assembly with proton-exchange membrane, and fuel cell)
IT 765279-31-0P 765279-32-1P
765279-33-2P 765279-34-3P 765279-36-5P 765279-44-5P
765279-57-0P
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); SPN (Synthetic preparation); PREP (Preparation); PROC

(Process)
(silica sol composition, membrane electrode assembly with proton-exchange membrane, and fuel cell)
IT 765279-37-6P 765279-38-7P
765279-39-8P 765279-40-1P 765279-41-2P
765279-42-3P 765279-43-4P 765279-45-6P
765279-47-8P 765279-50-3P 765279-53-6P
765279-55-8P
RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(silica sol composition, membrane electrode assembly with proton-exchange membrane, and fuel cell)
OSC.G 1 THERE ARE 1 CAPLUS RECORDS THAT CITE THIS RECORD (1 CITINGS)

L41 ANSWER 3 OF 6 ZCAPLUS COPYRIGHT 2009 ACS on STN
AN 2003:657076 ZCAPLUS Full-text
DN 139:182883
TI Method of preparation of zirconium phosphate-based proton-conducting ceramic membranes for use in membrane-electrode assemblies and fuel cells
IN Hennige, Volker; Hying, Christian; Hoerpel, Gerhard
PA Creavis Gesellschaft Fuer Technologie Und Innovation m.b.H., Germany
SO PCT Int. Appl., 38 pp.
CODEN: PIXXD2
DT Patent
LA German
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI WO 2003069712	A2	20030821	WO 2003-EP163	200301 10
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WO 2003069712	A3	20040701		

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

DE 10205849	A1	20030821	DE 2002-10205849	200202 13
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AU 2003244864	A1	20030904	AU 2003-244864	200301 10
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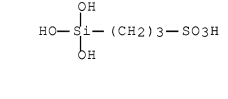
PRAI DE 2002-10205849 A 20020213 <--
WO 2003-EP163 W 20030110 <--

AB The invention relates to proton-conducting ceramic membranes on the basis of zirconium phosphates, methods for the production thereof, and the use thereof in MEAs and fuel cells. The inventive ceramic membranes represent a new class of proton-conducting membranes. In a first step of a special method, nanoscale zirconium phosphate is produced in a microjet reactor. The material is then applied on a flexible carrier as a suspension and solidified, whereby a cation/proton-conducting membrane is obtained which is impermeable for materials, flexible and can be used in a fuel cell without any problem.

IT 70942-24-4
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)
(method of preparation of zirconium phosphate-based proton-conducting ceramic membranes for use in membrane-electrode assemblies and fuel cells)

RN 70942-24-4 ZCAPLUS
CN 1-Propanesulfonic acid, 3-(trihydroxysilyl)- (CA INDEX NAME)



IC ICM H01M008-10
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 57

IT 78-10-4, Teos 78-38-6, Diethylethyl phosphonate 598-02-7, Diethyl phosphate 681-84-5, Tmos 1343-98-2, Silicic acid 3087-36-3, Titanium ethylate 7440-67-7D, Zirconium, alcoholate 7585-20-8, Zirconium acetate 7664-38-2, Phosphoricacid, processes 11126-30-0, Zirconium chloride 12789-45-6, Phosphoric acid methyl ester 13746-89-9, Zirconium nitrate 16024-58-1 17501-44-9,

Zirconium acetylacetonate 40849-91-0, Titanium propylate 70942-24-4 578739-18-1
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)
(method of preparation of zirconium phosphate-based proton-conducting ceramic membranes for use in membrane-electrode assemblies and fuel cells)

OSC.G 1 THERE ARE 1 CAPLUS RECORDS THAT CITE THIS RECORD (1 CITINGS)
RE.CNT 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD ALL CITATIONS AVAILABLE IN THE RE FORMAT

L41 ANSWER 4 OF 6 ZCAPLUS COPYRIGHT 2009 ACS on STN
AN 2002:778353 ZCAPLUS Full-text
DN 137:297412
TI Electrolyte membrane, membrane electrode units comprising the same, method for the production thereof and specific uses therefor
IN Hennige, Volker; Hoerpel, Gerhard; Hying, Christian
PA Creavis Gesellschaft fuer Technologie und Innovation mbH, Germany
SO PCT Int. Appl., 57 pp.
CODEN: PIXXD2
DT Patent
LA German
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI WO 2002080297	A2	20021010	WO 2002-EP1550	20020214
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WO 2002080297	A3	20030220		
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
DE 10115928	A1	20021010	DE 2001-10115928	20010330
			<--	
AU 2002229750	A1	20021015	AU 2002-229750	

200202
14

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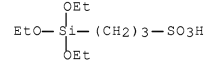
PRAI DE 2001-10115928 A 20010330 <--
WO 2002-EP1550 W 20020214 <--

AB The invention relates to a p-conductive, flexible electrolyte membrane for a fuel cell, which is impermeable to the reaction components of the fuel-cell reaction. Said membrane comprises a composite material that is permeable to substances and that consists of a flexible, perforated support comprising a glass, in addition to a porous ceramic material. The composite material is interspersed with a p-conductive material, which is suitable for selectively conducting protons through the membrane.

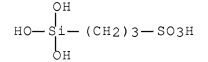
IT 260784-99-4
RL: TEM (Technical or engineered material use); USES (Uses)
(coatings; proton-conducting flexible electrolyte membranes with ceramic support for fuel cells)

RN 260784-99-4 ZCAPLUS
CN 1-Propanesulfonic acid, 3-(triethoxysilyl)- (CA INDEX NAME)



IT 70942-24-4 438461-55-3
RL: TEM (Technical or engineered material use); USES (Uses)
(proton-conducting flexible electrolyte membranes with ceramic support for fuel cells)

RN 70942-24-4 ZCAPLUS
CN 1-Propanesulfonic acid, 3-(trihydroxysilyl)- (CA INDEX NAME)



RN 438461-55-3 ZCAPLUS
CN 1-Propanesulfonic acid, 3-(dihydroxysilyl)- (CA INDEX NAME)

IC ICM H01M008-10
ICS H01M008-02; H01M004-88
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38, 48, 57, 72
IT 1314-23-4, Zirconium oxide, uses 7429-90-5D, Aluminum, alkoxides, hydrolyzed 7440-62-2D, Vanadium, alkoxides, hydrolyzed 260784-99-4
RL: TEM (Technical or engineered material use); USES (Uses)
(coatings; proton-conducting flexible electrolyte membranes with ceramic support for fuel cells)
IT 78-10-4D, Tetraethoxy silane, hydrolyzed 78-38-6, Diethyl ethyl phosphonate 555-31-7D, Aluminum triisopropylate, hydrolyzed 681-84-5, TMOS 762-04-9, Diethyl phosphite 1314-62-1, Vanadium oxide (V2O5), uses 1332-29-2, Tin Oxide 2031-67-6, Methyl triethoxy silane 2171-98-4D, Zirconium isopropylate, hydrolyzed 3087-37-4D, Tetrapropoxytitanium, hydrolyzed 7585-20-8 7699-41-4, Silicic acid (H2SiO3) 10049-08-8, Ruthenium chloride 12789-45-6, Phosphoric acid methyl ester 13463-67-7, Titania, uses 13826-66-9, Zirconium oxynitrate 17501-44-9, Zirconium acetylacetonate 23519-77-9, Zirconium tetrapropylate 70942-24-4 432545-16-9, Tungsten hydroxide oxide silicate (W3(OH)4O2(SiO4)) 438461-54-2 438461-55-3
RL: TEM (Technical or engineered material use); USES (Uses)
(proton-conducting flexible electrolyte membranes with ceramic support for fuel cells)
OSC.G 1 THERE ARE 1 CAPLUS RECORDS THAT CITE THIS RECORD (1 CITINGS)
RE.CNT 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L41 ANSWER 5 OF 6 ZCAPLUS COPYRIGHT 2009 ACS on STN
AN 2002:778352 ZCAPLUS Full-text
DN 137:297411
TI Description, fabrication and applications of proton conducting electrolyte membranes and membrane electrodes
IN Hennige, Volker; Hoerpel, Gerhard; Hying, Christian
PA Creavis Gesellschaft fuer Technologie und Innovation mbH, Germany
SO PCT Int. Appl., 57 pp.

CODEN: PIXXD2
DT Patent
LA German
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI WO 2002080296	A2	20021010	WO 2002-EP1549	20020214
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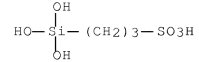
WO 2002080296	A3	20050407		
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
DE 10115927	A1	20021010	DE 2001-10115927	20010330
			<--	
AU 2002246091	A1	20021015	AU 2002-246091	20020214
			<--	
PRAI DE 2001-10115927	A	20010330	<--	
WO 2002-EP1549	W	20020214	<--	

OS MARPAT 137:297411

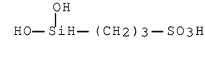
AB A proton-conducting, flexible electrolyte membrane for a fuel cell, which is impermeable for the reactants of a fuel-cell reaction, is described. The membrane is a permeable composite material which has a flexible, perforated, ceramic-containing support. The composite material is impregnated with a proton-conductive material that selectively conducts protons through the membrane.

IT 70942-24-4, Si 285
RL: TEM (Technical or engineered material use); USES (Uses)
(coatings; proton-conducting flexible
electrolyte membranes with ceramic support for fuel cells)

RN 70942-24-4 ZCAPLUS
CN 1-Propanesulfonic acid, 3-(trihydroxysilyl)- (CA INDEX NAME)



IT 438461-55-3
RL: TEM (Technical or engineered material use); USES (Uses)
(proton-conducting flexible electrolyte membranes with ceramic support for fuel cells)
RN 438461-55-3 ZCAPLUS
CN 1-Propanesulfonic acid, 3-(dihydroxysilyl)- (CA INDEX NAME)



IC ICM H01M008-10
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
IT 1314-23-4, Zirconium oxide, uses 7429-90-5D, Aluminum, alkoxides, hydrolyzed 7440-62-2D, Vanadium, alkoxides, hydrolyzed 70942-24-4, Si 285
RL: TEM (Technical or engineered material use); USES (Uses)
(coatings; proton-conducting flexible electrolyte membranes with ceramic support for fuel cells)
IT 78-10-4, Tetraethyl orthosilicate 512-56-1, Methyl phosphate 681-84-5, Tetramethyl orthosilicate 762-04-9, Diethyl phosphite 1332-29-2, Tin oxide 2031-67-6, Methyl triethoxy silane 2171-98-4, Zirconium isopropylate 7446-70-0D, Aluminum chloride, hydrolyzed 7578-04-3, Tributylmethylammonium p-toluenesulfonate 7585-20-8, Zirconium acetate 7601-90-3, Perchloric acid, uses 7647-01-0, Hydrochloric acid, uses 7664-38-2, Phosphoric acid, uses 7664-93-9, Sulfuric acid, uses 7697-37-2, Nitric acid, uses 7782-99-2, Sulfurous acid, uses 12067-99-1, Tungstophosphoric acid 13598-36-2, Phosphonic acid 13765-95-2 13826-66-9, Zirconium oxynitrate 17501-44-9, Zirconium acetylacetonate 65039-09-0, 1-Ethyl-3-methylimidazolium chloride 79917-88-7, 1,3-Dimethylimidazolium chloride 79917-90-1, 1-Butyl-3-methylimidazolium chloride 80432-05-9 105541-66-0, Octyltriphenylphosphonium p-toluenesulfonate 143314-14-1 143314-15-2 143314-16-3, 1-Ethyl-3-methylimidazolium

tetrafluoroborate 145022-44-2, 1-Ethyl-3-methylimidazolium trifluoromethanesulfonate 174899-65-1 174899-66-2, 1-Butyl-3-methylimidazolium trifluoromethanesulfonate 174899-82-2 438461-55-3 469910-77-8 469910-78-9
RL: TEM (Technical or engineered material use); USES (Uses)
(proton-conducting flexible electrolyte membranes with ceramic support for fuel cells)
OSC.G 2 THERE ARE 2 CAPLUS RECORDS THAT CITE THIS RECORD (2 CITINGS)
RE.CNT 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD ALL CITATIONS AVAILABLE IN THE RE FORMAT

L41 ANSWER 6 OF 6 ZCAPLUS COPYRIGHT 2009 ACS on STN
AN 2002:465869 ZCAPLUS Full-text
DN 137:49666
TI Cation-conducting or proton-conducting ceramic fuel cell membranes based on an immobilized hydroxysilyl-substituted silicic or phosphonic acid
IN Hennige, Volker; Hying, Christian; Hoerpel, Gerhard
PA Creavis Gesellschaft fuer Technologie und Innovation m.b.H., Germany
SO PCT Int. Appl., 26 pp.
CODEN: PIXXD2
DT Patent
LA German
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI WO 2002047801	A1	20020620	WO 2001-EP12466	20011027
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W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
DE 10061920	A1	20020620	DE 2000-10061920	20001213
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CA 2431055	A1	20020620	CA 2001-2431055	

200110
27
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AU 2002021771 A 20020624 AU 2002-21771
200110
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EP 1345674 A1 20030924 EP 2001-270377
200110
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R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR
JP 2004515896 T 20040527 JP 2002-549366
200110
27
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US 20040028913 A1 20040212 US 2003-450247
200306
12
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NO 2003002719 A 20030613 NO 2003-2719
200306
13
<--
PRAI DE 2000-10061920 A 20001213 <--
WO 2001-EP12466 W 20011027 <--

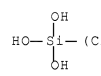
AB Solid proton-conducting and cation-conducting ceramic membranes are based on a porous and flexible ceramic base membrane that is impregnated by a proton-conducting material, dried, and consolidated in such a way to form an impermeable conducting membrane, especially for fuel cells. The proton-conducting substance is a hydroxysilyl-substituted phosphonic acid or sulfonic acid that is immobilized into an inorg. network (e.g., SiO2). The hydroxysilyl-substituted proton conductor, or its precursors, are organosilicon compds. of structures [(RO)y(R2)zSi-(R1-SO3-)a]xMx+, or [(RO)y(R2)zSi-{R1ObP(OcR3)O2}a]xMx+, in which R1 = C1-12-alkyl, C1-12-alkenyl, C5-8-cycloalkyl, -(CH2)n-c-C6H10-(CH2)m.-, or -(CH2)n-C6H4-(CH2)m-; n, m = 0-6; M = H+, NH4+, or a metal cation of valence x (=1-4); y = 1-3, z = 0-2, a = 1-3; z + y = 4 - a; b,c = 0 or 1; R1,R2 = H, Me, Et, Pr, or Bu; and R3 = Me, Et, Pr, or Bu.

IT 70942-24-4, 1-Propanesulfonic acid, 3-(trihydroxysilyl)-
438461-55-3
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)
(silicic acid precursor; in synthesis of cation-conducting or proton-conducting

ceramic fuel cell membranes based on an immobilized hydroxysilyl-substituted silicic or phosphonic acid)

RN 70942-24-4 ZCAPLUS

CN 1-Propanesulfonic acid, 3-(trihydroxysilyl)- (CA INDEX NAME)



RN 438461-55-3 ZCAPLUS

CN 1-Propanesulfonic acid, 3-(dihydroxysilyl)- (CA INDEX NAME)

IC ICM B01D071-02
ICS B01D071-04; B01D069-14

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38, 48, 57, 72

IT **70942-24-4**, 1-Propanesulfonic acid, 3-(trihydroxysilyl)-
438461-54-2 **438461-55-3**
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)
(silicic acid precursor; in synthesis of cation-**conducting** or **proton-conducting**
ceramic fuel cell membranes based on an immobilized hydroxysilyl-substituted silicic or phosphonic acid)

OSC.G 3 THERE ARE 3 CAPLUS RECORDS THAT CITE THIS RECORD (6 CITINGS)

RE.CNT 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

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